

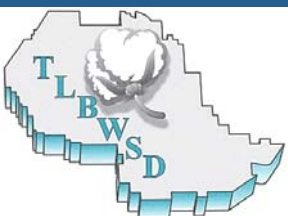


# TULARE LAKE BASIN WATER STORAGE DISTRICT

## AGRICULTURAL WATER MANAGEMENT PLAN

November 2015 Plan Update

*Compliant to Senate Bill X7-7, Water Conservation Act of 2009*



**TULARE LAKE BASIN  
WATER STORAGE DISTRICT**

**2015 Agricultural  
Water Management Plan**

**Prepared Pursuant to Water Code Section 10826  
In Accordance with  
The Water Conservation Act of 2009  
(Senate Bill x7-7)**

**Adopted November 2015**



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**Tulare Lake Basin Water Storage District**

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- Attachment 3: Thirteenth Amended Rules and Regulations of the Tulare Lake Basin  
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- Attachment 4: Summary of Surface Water Supplies and Groundwater Deliveries to  
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- Attachment 5: Tulare Lake Bed Coordinated Groundwater Management Plan  
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## **Section I: Introduction**

### **A. Description of Previous Water Management Activities**

Tulare Lake Basin Water Storage District (District) is located within a closed hydrologic basin, which by its nature, requires precise control of water applications. The District was a founding signatory to the *Memorandum of Understanding Regarding Efficient Water Management Practices by Agricultural Water Suppliers In California* and was a participant in the formation of the Agricultural Water Management Council in 1999. Before the Council's recent dissolution following passage of the Water Conservation Act of 2009, the District developed and updated its Water Management Plan in September 2009 and again in April 2013 in accordance with the guidelines of the Council. The District's Water Management Plan was approved and endorsed by the Agricultural Water Management Council in 2009. Previous water management activities included the automation of the Lateral B check structures, tailwater recirculation and conjunctive groundwater use. These activities continue in this Agriculture Water Management Plan (AWMP).

### **B. Coordination Activities**

#### **1. Notification of AWMP Preparation**

A Notice of Preparation for this AWMP was sent on or before October 2, 2015 to the following entities: City of Corcoran, Kings County, and Tulare County. A copy of the Notices of Preparation are included in Attachment 1.

#### **2. Public Participation**

No written comments were received from the public. A public hearing to receive comments on the AWMP was held on November 3, 2015. No representative of the public attended the meeting and no comments were received.

### **C. AWMP Adoption and Submittal**

#### **1. AWMP Adoption**

A copy of the signed resolution adopting this AWMP is included in Attachment 1.

#### **2. AWMP Submittal**

On November 12, 2015, copies of the Adopted AWMP were mailed to:  
The Kings County Library  
The California State Library  
Department of Water Resources  
The Kings County Local Agency Formation Commission

#### **3. AWMP Availability**

Copies of this AWMP are available for review at the District office.

## **D. AWMP Implementation Schedule**

See Section VIII, Table 11 for the Implementation Schedule.

# **Section II: Description of the Agricultural Water Supplier and Service Area**

## **A. Physical Characteristics**

### **1. Size of the service area**

The District was created on September 10, 1926 for the delivery of surface water supplies to agricultural lands within its boundaries. The District has a gross acreage of approximately 190,000 acres. Its irrigable acreage is approximately 170,000 acres.

### **2. Location of the service area and water management facilities**

The District is located in the Central San Joaquin Valley of California (For a District map and Tulare Lake Basin Topography map see Attachment 2) in Kings and Tulare Counties, and encompasses the area of the historic Tulare Lake Bed. The City of Corcoran is located on the east side of the service area, the community of Kettleman City on the southwest side, the community of Stratford on the northwest side and the community of Alpaugh on the southeast side. Figure 2 shows the District service area and its principal irrigation facilities.

The District delivers surface water supplies to its water users. No groundwater wells are owned or operated by the District. The primary local surface water right is on the Kings River with some supplemental supplies from the Tule and Kaweah Rivers. Kings River deliveries are monitored and conveyed at the Empire No. 2 Weir and storage pool located at the terminus of the South Fork of the Kings River. This pool has an approximate storage capacity of 400 acre feet. The District owns and operates two canal facilities, Laterals A and B that are approximately 23 miles in length which deliver State Project Water from the California Aqueduct into major canals that convey water to water users within the District.

### **3. Terrain and soils**

The topography of the Tulare Lake Basin Water Storage District (District) is a gradually sloping trough from the District's outer boundary toward the lowest region in the Tulare Lake Bed. The lowest region of the Tulare Lake Bed is approximately 175 feet above mean sea level (MSL). The generally flat terrain has an average slope of about one-foot per every mile from the lowest area towards the boundary. The District is a "closed" basin with no natural outlet. It is important to note that no natural outflow from the historic Tulare Lake has occurred since the late 1870's. This is a result of increased upstream diversions

on the eastside of the San Joaquin Valley from the four major river tributaries, Kings, Kaweah, Tule, and Kern, to the District, and operations of the U.S Army Corps of Engineers flood control projects on those tributaries. However, periodic floodwaters occurring in above-normal runoff years can inundate highly productive farmland within the District. This occurs approximately in 1 out of every 7 years.

Included in Attachment 2 is a Tulare Lake Basin Topography Map. The District's boundary line is not shown on this map, but it follows the rim of the historic Tulare Lake Bed. All elevations are based on a spring 1966 survey conducted by the United States Geological Survey. Elevations are subject to revision which were most recently revised in 1983.

The soils in the region are primarily semi-permeable to impermeable clay soils. The rim soils are primarily fine-grained, silty alluvium deposited along the shoreline of the historical Tulare Lake. The Corcoran Clay is an impermeable hydrologic barrier that ranges from 400 to 600 feet below the surface. The clay layer ranges in thickness from 50 to several hundred feet. As a result of the clay strata, any economically feasible attempt to directly recharge the aquifer below the Corcoran Clay is impractical within the District boundary.

The Water Users [farm operators and/or landowners] take advantage of the area's flat topography and fine-textured clay soils to minimize the use of pump lift stations. Due to the terrain and heavy clay soils, border-strip irrigation is a very efficient irrigation method within most of the District. The border-strip method of irrigation produces a highly uniform distribution of applied water. This irrigation method typically involves using high-volume booster pumps to lift water from the supply canals to the cropland. The water spreads between wide borders and flows about half-a-mile along a relatively flat slope to the end of the field. This irrigation method effectively permits the leaching of salts from the clay soils while tailwater recovery systems and tile drains minimize accumulation of perched groundwater.

The long practice of tailwater recovery is also very important in efficiently utilizing and maximizing existing water supplies. In the Tulare Lake Bed, this method achieves some of the highest irrigation efficiencies throughout California. As noted in Department of Water Resources' (DWR) 1982 Report entitled "Recommended Water Management Plan for Tulare Lake Basin Water Storage District" in response to the Governor's Executive Order B 68-80, the District had an irrigation efficiency of 98%. Additionally, various Water Users are currently implementing sub-surface drip tape as a tool for precise placement and control of water and nutrients. Although a significant number of acres have been converted to tape, no real water savings have been demonstrated. Rather, the use of drip tape has been justified by the resulting substantial increases in crop yield.

#### 4. Climate



The climate in the region is typical of the southern San Joaquin Valley. The Tulare Lake Bed region is semi-arid. Average annual rainfall is 7.1 inches. Spring seasons are usually mild with some wind, summers hot and dry, autumns cool and brisk, and winter seasons are typically characterized by fog and rain with temperatures seldom reaching the freezing point. Average precipitation and maximum and minimum temperatures were measured at a location 4 miles from the District's eastern boundary and provided by the Corcoran Irrigation District.

Table 1 indicates average monthly precipitation from 1940 to 2014. Monthly rainfall ranges from 0.0 to about 1.4 inches. About 70% of the rainfall typically occurs between the months of December to March.

**Table 1.** Average Monthly Precipitation from 1940 to 2014

Month	Average Precipitation (inches)
January	1.39
February	1.32
March	1.15
April	0.70
May	0.23
June	0.06
July	0.01
August	0.01
September	0.14
October	0.31
November	0.70
December	1.06
<b>Average Annual Precipitation</b>	<b>7.07</b>

Source: NOAA National Climate Data

Maximum and minimum average monthly temperatures are listed in Table 2. As reflected in Table 2, the 74-year average maximum and minimum temperatures occur respectively during July and December.

**Table 2.** Average Maximum and Minimum Monthly Temperatures

Month	Average High	Average Low	Monthly Average
	(°F)	(°F)	(°F)
January	54.9	36.1	45.5
February	61.8	39.3	50.5
March	68.2	42.4	55.3
April	75.9	46.3	61.1
May	85.4	52.5	69.0
June	93.0	58.4	75.7
July	99.1	63.3	81.2
August	97.2	61.7	79.4
September	91.5	57.2	74.3
October	80.9	49.1	65.0
November	66.2	40.3	53.3
December	55.5	35.9	45.7

Source: NOAA National Climate Data Center

## **B. Operational Characteristics**

### **1. Operating rules and regulations**

The District allocates 100% of its river and imported water supplies to its Water Users based upon their respective acreage ownership and lands leased within the District. The District also manages the deliveries of some other entities' water supplies that are delivered into the District. The two primary sources of surface water are the Kings River and imported State Project Water (SPW). The District only manages the surface waters to its boundaries where they are measured and discharged to internal irrigation systems. These internal systems consist of irrigation canals and ditches, which are owned and operated by both private and public entities. Groundwater supplies are privately owned and managed. The District neither owns nor operates any groundwater wells.

Currently, water allocation from the major local surface water supply, the Kings River, is based upon Kings River Water Association Administrative Agreements. The District typically delivers water in all but extreme dry year conditions. The District's allocation is, in turn, allocated among its Water Users based upon each of their respective owned/operated lands as a percent of the District's total acreage. Each Water User makes a request for deliveries of its share of Kings River water, either from its storage account or for direct delivery. Requests for deliveries are normally made two days in advance due to the approximately 48 hours required for water to flow from Pine Flat Dam to the District's point of diversion on the Kings River at Stratford, California.

The other primary surface water source, State Project Water (SPW), is allocated based on the District's Water Supply Contract with the California Department of

Water Resources (DWR). These quantities are specified in short-term contracts between the District and its landowners. The District's Water Users are provided the option of contracting for SPW on a voluntary basis. Those landowners who choose to contract for SPW are allocated their proportionate share of the District's 87,471 acre-feet of annual Table A contract water based on their respective owned/operated qualified lands as a percent of the District's total contracted acreage. The District's Amended Rules and Regulations, which are updated periodically, include provisions regarding the operation of SPW deliveries to the Water Users. A copy of the recent Rules & Regulations dated October 2, 2012 is referenced in Attachment 3.

Some key points of the regulations are listed below:

- SPW deliveries must be requested by the water user 24 hours prior to actual delivery.
- Kings River deliveries must be requested by the water user 48 hours prior to actual delivery.
- Allocation of SPW or other waters is based on a water user's proportionate share, computed on a uniform basis per assessed, contracted acre, under the terms and conditions set forth in the Water Service Contract. This provides an equitable allocation of water (on a per-acre basis) to all water users.

## 2. Water delivery measurements or calculations

Water deliveries to water users from Lateral A and B and the Kings River are measured by several different methods: a sharp crested weir, a Cipolletti weir, parshall flumes, venturi meters, and propeller-type flowmeters. Float-operated digital and mechanical stage recorders and differential level recorders are used. Using the stage recorder measurements calculations are made to determine the total daily volumetric flow at each measuring site or turnout to provide a permanent record of all water deliveries. The frequency of measurement, calibration, maintenance, and level of accuracy for the different types of measuring devices are detailed as follows:

- **The Sharp Crested Weir:** measures a portion of the flows of Kings River water into the District. The flowrate is measured on a continual basis using a float operated chart recorder; flows are periodically validated by current meters. The District's Engineer inspects the weir on a periodic basis for structural integrity, and field personnel routinely clean debris from the weir.
- **The Cipolletti Weir:** measures a portion of SPW delivered from the District's Lateral B. Flow rates are recorded on a continual basis on a float-operated chart recorder and are checked daily by District field personnel for accuracy and debris. The flows are verified periodically by current meter measurements.

- **Parshall Flumes:** are used to measure flows of SPW in the District's Lateral A and B and Kings River water entering the District. The level of water flowing through the flume, which corresponds to a calculated flow rate, is recorded continuously. Discharges in the flumes are calibrated periodically using a current meter. District field personnel maintain the parshall flumes.

- **Venturi Meters:** are used to measure some deliveries from the District's Laterals A and B into existing private and public canals within the District. Stevens differential recorders are used to measure the head difference that occurs in the venturi installed in the pipe. When deliveries are made, the recorder produces a continuous record of this differential head. District field personnel maintain the recorders and Venturi meters.

- **Propeller-type Meters:** are used to measure small flowrates of SPW diverted from the District's Laterals A and B. The mechanical meter incorporates a propeller connected to a flowrate indicator and a totalizer. Readings are taken daily during deliveries. The meters are inspected daily for proper operation and are periodically serviced to ensure accuracy.

### 3. Water rate schedules and billing

The District collects its revenue from Water Users for water charges based on two methods: 1) land assessments and 2) water tolls and charges. The District's Kings and Tule River expenses are collected from assessments levied on all lands within the District on a uniform per-acre rate. SPW is billed to the Water Users based on water tolls and charges. These tolls and charges are based on the most current charges from the DWR which include a fixed and a variable component (in volume). Also, an additional amount is charged to cover the District's O & M charges attributable to SPW deliveries. These charges are billed monthly to the Water Users based upon their respective percentage of contracted water to that of the total contracted water within the District. No District charges are applied to floodwaters entering the District. Floodwaters are managed by private landowners and reclamation districts.

### 4. Water shortage allocation policies

**State Project Water (SPW):** The District's Water Shortage Allocation Policy for SPW is contained in the District's Amended Rules and Regulations (Attachment 3). The following is an excerpt regarding the water shortage allocation policy: *"...14. Water Shortages Pursuant to powers granted by Section 43004 of the California Water Code, in the event of shortage of Project Water, water will be apportioned to each Water User within District, on a pro rata basis relating to their respective contract quantities of Table A Water..."*

**Kings River Water:** No applicable shortage policy exists for the District's Kings River water. The District's scheduled entitlement water is allocated uniformly to each individual Landowner based on acreage owned within the District. Each

Landowner has access to a share of the District's storage space in Pine Flat and upstream reservoirs, proportionate to lands owned within the District, and manages its own stored water or daily allocated entitlement.

Landowners manage their water supplies conjunctively utilizing carryover storage, and are permitted to transfer or exchange water. Most Landowners in the District have also water rights in one or more various public or mutual water companies which are also Kings River water rights holders.

The District has a continuing policy to secure, enhance, and protect surface water supplies on behalf of its Landowners. Since the District is located within a water deficient area and cannot feasibly directly recharge the groundwater basin, imported surface water supplies are extremely important to meet irrigation demands and provide in-lieu recharge to the groundwater basin. The local river supplies are not adequate to provide a reliable supply of water on an annual basis. Delivery of both Kings River and SPW in above-normal years greatly enhances the District's in-lieu recharge program. During dry years this recharged groundwater is extracted when surface water supplies are limited. This practice, known as conjunctive use, has been practiced for many decades in the District.

**Enforcement Policy for Wasteful Use of Water:** Because the entire San Joaquin Valley is water deficient, the District's Water Users have to practice sound water management to maximize the limited existing supplies. Management Practices include: conjunctive use, efficient farming and irrigation techniques, and conservation. DWR concluded in its 1982 Report entitled "Recommended Water Management Plan for Tulare Lake Basin Water Storage District", in response to the Governor's Executive Order B 68-80, that the District's irrigation efficiency was 98%. In the Tulare Lake Drainage District's October 2001 Drainage Operation Plan, the Tulare Lake Basin Water Storage District was documented as having a District irrigation efficiency of 97.2% for the year 2000. Therefore, it is not necessary for the District to use or need enforcement policies to minimize the wasteful use of water. The Water Users are among California's most efficient users of irrigation water.

## **Section III: Description of Quantity of Water Uses**

### **A. Agriculture Water Use**

All water use within the District is for agricultural purposes. The District water supplies come from surface supplies. The District does not own any wells and does not provide any groundwater to its water users.

#### **1. Surface Water Supply**

Surface water supplies delivered into the District consist of water rights on the Kings, Kaweah, and Tule Rivers, and contracted State Project Water (SPW). From

time to time, other surface waters are available, as discussed below. Some Water Users have additional local surface water supplies through ownership interests in other public agencies and private entities (mutual water companies). Floodwaters, though infrequent, are impounded by the landowners within and immediately south of the District. Since the District began taking deliveries of SPW in 1968, total surface water deliveries have accounted for 80% of the total average annual water supplies utilized within the District (See Attachment 4). Table 3 reflects the various surface water supplies delivered to the District for the water years 2000-2001 through 2013-2014. The current drought has impacted current surface supplies, but all landowners anticipate surface water will return to historic levels in the future.

**Table 3. Surface Water Supplies Delivered Within TLBWSD, Acre Feet**

<b>Water Year 1\</b>	<b>Flood Waters 2\</b>	<b>Local River Supplies 3\</b>	<b>State Project Water 4\</b>	<b>Other Surface Water 5\</b>	<b>Total</b>
2000–2001	0	106,000	122,000	31,000	259,000
2001–2002	0	59,000	89,000	12,000	160,000
2002–2003	0	137,000	73,000	0	210,000
2003–2004	0	64,000	101,000	18,000	183,000
2004–2005	45,000	191,000	80,000	0	316,000
2005–2006	135,000	70,000	96,000	2,000	303,000
2006–2007	0	168,000	152,000	0	320,000
2007–2008	0	90,000	32,000	1,000	123,000
2008–2009	0	79,000	32,000	0	111,000
2009–2010	0	187,000	24,000	23,000	234,000
2010–2011	138,200	144,000	28,000	20,000	330,200
2011–2012	0	124,000	99,000	9,000	232,000
2012–2013	0	67,000	35,000	9,000	111,000
2013–2014	0	37,000	7,000	2,000	46,000
<b>Total (AF)</b>	<b>318,200</b>	<b>1,523,000</b>	<b>970,000</b>	<b>127,000</b>	<b>2,938,200</b>
<b>% of Total</b>	<b>10.8%</b>	<b>51.8%</b>	<b>33.0%</b>	<b>4.3%</b>	<b>100.0%</b>

1\ October 1 through September 30.

2\ Floodwaters from local rivers impounded in the Tulare Lake Bed or flood releases directly diverted from the rivers.

3\ Local River supplies include the District's and individual Water Users' water rights from the Kings and Tule Rivers.

4\ SPW supplies include Table A, Carryover, Article 21, and Turnback Pool waters from the California Aqueduct.

5\ Other Surface Waters include purchase, exchange, and transfer waters.

## **Local River Supplies and Floodwaters**

The Kings, Kaweah, Tule, and Kern Rivers originate in the southern Sierras east of the District. These four rivers are regulated by dams constructed by the US Army Corps of Engineers in the 1950's and 1960's. Smaller unregulated streams provide unreliable flows, occurring only during flood periods. The Kings River is the primary local river water supply for the District. The District's Tule River water right is usually available only during periods of high-flow. Because the District's high flow water rights on the Kaweah and Kern Rivers produce relatively small quantities of water that experience substantial channel losses when delivered to Tulare Lake, those supplies are exchanged with upstream interests. Typically during extremely wet years, floodwaters from the four rivers will inundate lands within the Tulare Lake Bed. Flooding of cropland occurs on the average of one out of every seven years. During extreme flooding periods, flood flows will enter the District, not only from the four principal rivers, but also from uncontrolled streams such as Deer Creek, Poso Creek, White River, and runoff from the west side of the San Joaquin Valley. Residual floodwaters in Tulare Lake Bed are used to the maximum extent possible for irrigation. The balance of these waters is lost to evaporation and, to a much lesser extent, seepage.

The Kings River and Tule River water supplies available under the District's water rights are erratic in nature. Since 1968 as much as 220,000 acre feet have been delivered in years of moderate to above-normal runoff, and as little as 40,000 acre-feet delivered in drought years. Generally during above-normal or wet years, the lack of reservoir capacity on the four major rivers results in flood releases from each of the respective reservoirs. Since the Tulare Lake Bed is a closed basin, inundation of cropland leads to decreased demand for surface waters. More surface reservoir capacity would provide greater storage for irrigation deliveries in subsequent years. It would also result in less groundwater pumping in a below-normal year by having more stored water for delivery. The District is actively involved in pursuing additional local surface water storage.

## **State Project Water Supplies**

Erratic local water supplies and a continuing desire to reduce groundwater pumping motivated the District to enter into a water supply contract for SPW in 1963. Deliveries from the California Aqueduct began in September 1968. Through December 31, 2014, (Update) more than 4.7 million acre-feet of SPW and other waters have been delivered from the California Aqueduct to the District. The SPW provides an additional supply of water to the District, thereby reducing reliance on groundwater.

## **Restrictions on Time of Diversions**

Kings River water deliveries are primarily made to the District's lands via the South Fork Channel near the northern boundary of the District. Water Users place orders with the District's staff, which summarize the orders and place them with the Kings

River Watermaster. The Kings River Water Association (KRWA) manages all Kings River deliveries, including releases from Pine Flat Reservoir. Typically, the Kings River water run, via the South Fork channel, occurs during the summer months. During periods of encroachment in the Reservoir's flood control reservation space, the U.S. Army Corps of Engineers will direct releases based upon the Corps' Pine Flat Reservoir Operations Manual. Due to the distance of Pine Flat Reservoir from the District's diversion facilities, approximately 48 hours are required for deliveries to flow to the District's point of diversion. Water Users have operated on this basis since Pine Flat became operational in 1954, and therefore, do not consider the lag time a restriction to water deliveries. In certain times, the Watermaster is often able to shorten the delivery time.

SPW is delivered to the District through Laterals A and B, which divert directly from the California Aqueduct. Orders are typically placed 24 hours in advance to the San Joaquin Field Division of the Department of Water Resources (DWR). Water Users have operated under this procedure since September 1968 and do not consider it a restriction to deliveries.

## **2. Groundwater Supply**

The District overlies the southern portion of the Tulare Lake Groundwater Basin (TLGB). The TLGB is described in studies conducted by the Department of Water Resources and the United States Geological Survey. In a simplistic view, the TLGB consists essentially of a shallow aquifer and a deep aquifer separated by the Corcoran Clay hydro-geologic barrier. The Corcoran Clay is located about 400 feet to 600 feet below the surface of the District and ranges in thickness from about 50 to 200 feet. As noted earlier, the soils which underlie District lands are primarily low water-bearing, fine-textured clay materials, with interspersed silty sand lenses. The relatively impermeable heavy clay soils prevent any feasible attempt to directly recharge the shallow aquifer from within the District. The District neither owns nor operates any groundwater wells. The groundwater pumped is conveyed through canal systems by the producers of the groundwater.

In 1995, the District and several other public entities and private landowners established the Tulare Lake Bed Coordinated Groundwater Management Plan (Plan) under the provisions of AB 3030 chaptered in 1992. In July 2012 the AB 3030 plan was updated to SB 1938 standards. A copy of the SB 1938 Plan is included as Attachment 5. The principle purposes of the Plan are to preserve local management of the groundwater resources and document the long-standing groundwater management practices and programs of the local landowners. The Plan focuses on on-farm management, rather than District management, since the District neither owns nor operates any wells. However, the District's surface water supplies are conjunctively used by the Water Users to enhance the groundwater resources. As the Plan Administrator, the District compiles data and periodically publishes annual reports for the Plan. The Plan includes the purchase of surface water for in-lieu recharge and recharge in areas east of the District.



### **3. Other Water Supplies**

The District is also active in water exchange programs to more efficiently manage its Kings River water and water supplies from the California Aqueduct. The District has no major surface storage reservoir or groundwater banking capabilities. The Empire Weir No. 2 pool, wherein deliveries of Kings River water to the District are received, is only used for temporary storage with a capacity of approximately 400 acre feet. In wet years, due to the lack of surface water or groundwater storage, the District undertakes water exchanges with other agricultural entities which have a demand for the water. In exchange, the District receives water from these entities at a later date or payment to purchase water during dry years. A prime example of a beneficial water exchange is the 1967 agreement with the County of Kings. The County, a SPW contractor, has no direct connection from the California Aqueduct to convey its SPW. By exchange, the District takes delivery of 3,100 acre-feet of the County's contract supply and delivers an equivalent amount of its Kings River water to the County Agricultural entities. This exchange provides a net benefit by providing additional water to the District due to less conveyance losses in the River channel. It also provides a supply to the County with no expense of constructing a conveyance facility to take delivery of its SPW. In addition to the Kings River Exchange, the District also participates in other exchanges.

Purchased waters are also important to the District's overall water management programs. Historically during the dry and drought years, the District has purchased Yuba County Water Agency Water, California Drought Water Bank Water, Dry Year Transfer Water, and SPW Supplemental Short Term Water Purchase Water for delivery off the California Aqueduct. In normal and above average years the District is also active in pursuing ART 21 supplies and any other supplies that are available at an affordable price. In addition to water purchases, Kings River water transfers occur on a regular basis to better utilize the river supply. Without groundwater storage capability, the District continually balances its water supplies through water purchases and transfers to best serve its Water Users.

### **4. Water Uses within the Suppliers Service Area**

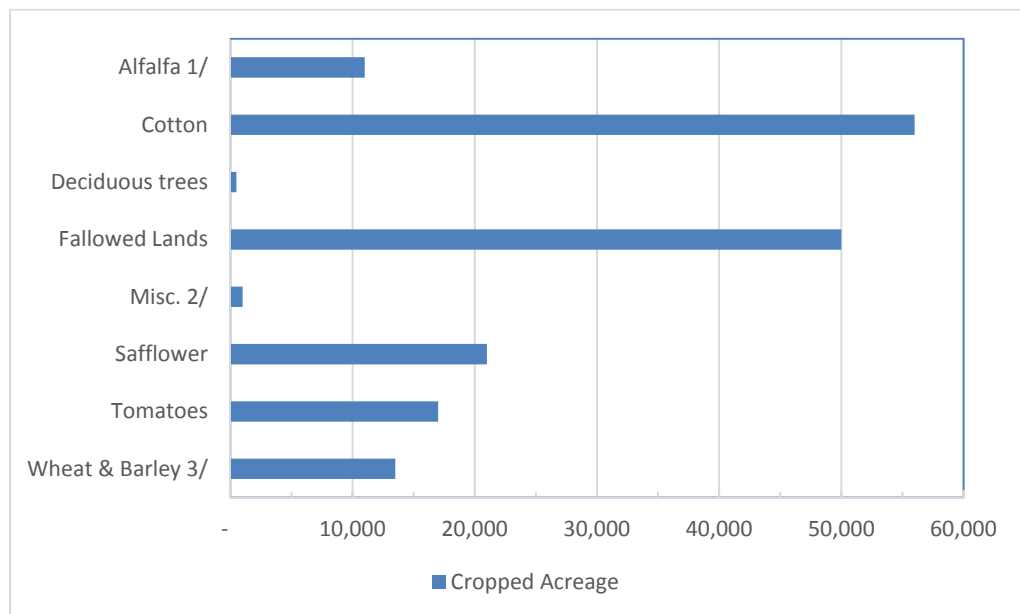
The District supplies 100% of its surface water for agricultural purposes. Without direct groundwater recharge capability, the reduction of pumping allows indirect recharge of the groundwater basin. In-lieu recharge is a key element of the Tulare Lake Bed Coordinated Groundwater Management Plan (Attachment 5) described earlier.

### **Agricultural Water Use and Cropping**

The District is comprised of 190,000 gross acres, with approximately 170,000 acres in irrigated cropland, and the remaining 20,000 acres in roadways, levees, ditches and canals. For a representative water year, the District assumes approximately 120,000 acres are irrigated, with an average of 50,000 acres fallowed. Figure 1 reflects the different types of crops and a summary of the

cropping pattern within the District for a representative water year. Cotton, the primary crop grown, includes both the upland varieties and extra-long staple pima. It should be noted that the District does not control what crops are planted or how they are irrigated. Those decisions are made by the growers based on a variety of factors, including international market demand, water supply, and crop rotation schedules.

**Figure 1. Summary of Cropping Patterns for Representative Water Year**



1\ Includes alfalfa hay and seed alfalfa.

2\ Includes pasture, milo, and corn.

3\ Includes wheat, barley, triticale, and silage.

The primary use of applied water is to meet the adjusted evapotranspiration rates (Adj. ETc) for each crop. The overall crop water requirement also takes into consideration the leaching requirements, available perched shallow groundwater, and the effective precipitation. The estimated representative crop water requirements for crops grown within the District are listed in Table 4.

The Adj. ETc values are derived from available data from the California Irrigation Management Information System (CIMIS) at the Stratford and Lost Hills measuring stations. The hot summers and windy conditions are key factors affecting the evapotranspiration rates for crops in the Tulare Lake Bed.

Leaching requirements are a function of the salinity of the applied water and the soil salinity. The Water Users practice border-strip irrigation, which allows for meeting leaching requirements of the area's heavy clay soils.

A portion of the crop water requirements is reduced to account for perched shallow groundwater for most lands within the District. The available perched groundwater is dependent on previous irrigation and the soil type. The quantity of groundwater used is dependent on the individual crop's effective root zone depth.

Average rainfall within the area is approximately 7 inches. The overall annual effective precipitation measured in the eastern portion of the District is approximately 21,000 acre feet based upon previous calculations using the Soil Conservation Service methodology, from the Tulare Lake Drainage District's Drainage Operation Plan Reports for water years 1993-94, 1994-95, and 1995-96. This value is further verified by the farm operators within the District, that 20% (approximately 1.4 inches) of gross rainfall is accounted toward meeting crop water requirements. Thus, given the quantity of water, climate, and soil type, Water Users cannot rely on the timing of rainfall to provide sufficient water to irrigate crops.

**Table 4.** Crop Water Requirement in the District

<b>Crop</b>	<b>Crop Water Requirement, AF/Acre <sup>1</sup></b>
Alfalfa	3.5
Cotton	3.25
Deciduous Trees	2.7
Misc. <sup>3</sup>	2.6
Safflower	1.0
Tomatoes	2.65
Wheat & Barley <sup>2</sup>	2.15

<sup>1</sup> Crop Water Requirement - Crop evapotranspiration, plus the leaching requirement, less the perched groundwater water used by crops.

<sup>2</sup> Value for Grain crops are averages based on the values for each crop.

<sup>3</sup> Misc. crop (pasture, milo, and corn) values are averages for the major crops listed above.

## **Environmental, Recreational, Municipal, or Industrial Water Uses**

The District does not supply any water specifically for environmental, recreational, municipal, or industrial use purposes.

## **In-lieu Groundwater Recharge Water Use**

The District continually strives to deliver as much surface water as possible to meet crop needs and allow the Water Users to maximize conjunctive use practices. The use of surface water supplies versus groundwater provides in-lieu recharge to the groundwater basin. Since 1968, the initial year of SPW deliveries, groundwater accounts for about 20% of the District's average annual water usage. The District

historically benefited from conjunctive use practices during the drought years of 1976-1977, 1987-1992, 2001, 2007-2010, and 2012-2014 when groundwater usage increased. The District continues to be active in securing additional imported water supplies as well as opportunities to develop more storage for local surface waters. Through the TLBCGMP, the District, along with other Plan Participants of the TLBCGMP, monitors groundwater levels in the plan area, and collects mitigation funds for the purchase of supplemental surface water.

### **Transfers and Exchanges Water Use**

Water transfers are another important water management tool. Water transfers have been part of water management on the Kings River for decades. Due to increasing regulatory restrictions on State Project Water export pumping and failure of the State to complete the State Water Project, transfers in the California Aqueduct have become very important.

As discussed in Section III, A., 1, Surface Water Supply, the District has historically participated in transfers and exchanges, both on the Kings River and the California Aqueduct. As previously mentioned, the County of Kings SPW/Kings River Water Exchange Program has been an on-going program since 1968.

### **5. Drainage from the Water Supplier's Service Area**

Because the District lies in a closed basin, there is no natural outlet for any excess surface flows. All surface runoff (tailwater) is recirculated by the water users back into on-farm irrigation systems and reused as part of the irrigation supply. Some areas of the District have areas with a shallow or perched water table that are drained with subsurface drainage systems (tiles). Other areas with high levels of saline soils are also being drained by subsurface drainage systems. Landowners have installed these systems. The District does not own, operate, or manage any of the drainage related facilities. The on-farm systems are owned and operated by individual landowners. The Tulare Lake Drainage District (TLDD) formed in 1966, and the Tulare Lake Reclamation District No. 761 overlying the westerly portion of the District lands, both own, operate, and manage the subsurface drainage water collection and disposal systems for about 17% of the lands within the District. Water users manage the drainage issues on other lands through careful irrigation management and crop rotation, but many have a desire to increase the acreage of subsurface drainage systems.

## Section IV: Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier

### A. Water Supply Quantity

A water supply inventory of the waters delivered to the District is difficult to represent by one typical water-year (October 1 through September 30). As evident in Table 5, water year deliveries vary from about 150,000 to 420,000 acre-feet to District lands. These quantities include both District and non-District supplies delivered within the District, as discussed in earlier sections. The table below illustrates little or no groundwater is pumped when adequate surface water is available. Approximately 78% of the delivered water supply came from local or imported surface supplies while only 22% of the water used came from groundwater. The groundwater usage decreases when surface water is available. The District continually strives to deliver as much surface water as possible to meet crop needs and allow the Water Users to maximize conjunctive use practices. The use of surface water supplies versus groundwater provides in-lieu recharge to the groundwater basin. Reductions and uncertainties in the availability of SPW results in increased fallowing - reducing the number of acres that are planted and in certain years, lack of SWP deliveries increases groundwater pumping.

**Table 5.** Water Deliveries to Lands Within TLBWSD

<b>Water Year (Oct. – Sept.)</b>	<b>Flood Waters</b>	<b>River Runoff</b>	<b>SWP</b>	<b>Other Water</b>	<b>Ground Water</b>	<b>Total</b>
1968–1969	57,000	24,000	29,000	0	41,000	151,000
1969–1970	189,000	27,000	0	0	0	216,000
1970–1971	167,000	32,000	65,000	0	0	264,000
1971–1972	0	42,000	238,000	0	66,000	346,000
1972–1973	10,000	161,000	131,000	0	3,000	305,000
1973–1974	0	167,000	127,000	0	3,000	297,000
1974–1975	0	164,000	201,000	0	3,000	368,000
1975–1976	0	94,000	165,000	0	104,000	363,000
1976–1977	0	41,000	31,000	20,000	210,000	302,000
1977–1978	57,000	143,000	17,000	8,000	74,000	299,000
1978–1979	0	203,000	131,000	0	2,000	336,000
1979–1980	60,000	171,000	134,000	0	3,000	368,000
1980–1981	0	114,000	239,000	0	40,000	393,000
1981–1982	28,000	187,000	194,000	0	10,000	419,000
1982–1983	114,000	203,000	2,000	0	0	319,000
1983–1984	274,000	37,000	6,000	0	0	317,000

<b>Water Year (Oct. – Sept.)</b>	<b>Flood Waters</b>	<b>River Runoff</b>	<b>SWP</b>	<b>Other Water</b>	<b>Ground Water</b>	<b>Total</b>
1984–1985	88,000	103,000	183,000	0	5,000	379,000
1985–1986	31,000	226,000	65,000	7,000	2,000	331,000
1986–1987	0	170,000	155,000	0	27,000	352,000
1987–1988	0	89,000	120,000	0	134,000	343,000
1988–1989	0	67,000	130,000	18,000	162,000	377,000
1989–1990	0	45,000	56,000	69,000	175,000	345,000
1990–1991	0	45,000	16,000	0	228,000	289,000
1991–1992	0	43,000	43,000	32,000	216,000	334,000
1992–1993	0	181,000	45,000	0	90,000	316,000
1993–1994	0	127,000	110,000	13,000	92,000	342,000
1994–1995	40,000	177,000	41,000	19,000	58,000	335,000
1995–1996	0	126,000	262,000	27,000	0	415,000
1996–1997	148,000	95,000	41,000	5,000	0	289,000
1997–1998	135,000	100,000	26,000	0	0	261,000
1998–1999	90,000	43,000	211,000	0	0	344,000
1999–2000	0	149,000	207,000	15,000	18,000	389,000
2000–2001	0	106,000	122,000	31,000	100,000	359,000
2001–2002	0	59,000	89,000	12,000	160,000	320,000
2002–2003	0	137,000	73,000	0	125,000	335,000
2003–2004	0	64,000	101,000	18,000	170,000	353,000
2004–2005	45,000	191,000	80,000	0	10,000	326,000
2005–2006	135,000	70,000	96,000	2,000	0	303,000
2006–2007	0	168,000	152,000	0	74,000	394,000
2007–2008	0	90,000	32,000	1,000	255,000	378,000
2008–2009	0	79,000	32,000	0	151,000	262,000
2009–2010	0	187,000	24,000	23,000	99,000	333,000
2010–2011	138,200	144,000	28,000	20,000	18,000	348,200
2011–2012	0	124,000	99,000	9,000	89,000	321,000
2012–2013	0	67,000	35,000	9,000	196,000	307,000
2013–2014	0	37,000	7,000	2,000	162,000	208,000
<b>Total (AF)</b>	<b>1,806,200</b>	<b>5,119,000</b>	<b>4,391,000</b>	<b>360,000</b>	<b>3,375,000</b>	<b>15,051,200</b>
<b>46–Yr. Mean</b>	<b>39,265</b>	<b>111,283</b>	<b>95,457</b>	<b>7,826</b>	<b>73,370</b>	<b>327,200</b>
<b>% of Total</b>	<b>12.0%</b>	<b>34.0%</b>	<b>29.2%</b>	<b>2.4%</b>	<b>22.4%</b>	<b>100.0%</b>

The erratic local surface water supplies (river runoff, floodwaters) are highly dependent on weather conditions for any given year. Floodwaters impounded in the Tulare Lake Bed are not included in the District's representative water supplies since floodwaters are only available on average in one of every three years. Local river supplies are approximately 98% derived from the Kings River with the remainder from the Tule and Kaweah River systems. The water and storage rights on these systems are owned by the District and mutual water companies. The use of groundwater supplies is also dependent on weather conditions and the pumping activities by landowners. State Project Water supplies historically have been more consistent than local river supplies. However, SPW water year deliveries have varied from zero to over 260,000 acre feet. Additionally, increasing restrictions on SPW exports are limiting the quantity and timing of deliveries. Table 6 indicates a representative water supply for the lands within the District.

**Table 6.** Water Supplies for a Representative Water Year

<b>Representative Water Supply</b>	<b>Volume, Acre Feet <sup>1</sup></b>
Local Rivers <sup>2</sup>	167,000
State Project Water <sup>3</sup>	61,200
Exchanges, Transfers & Purchases <sup>4</sup>	13,100
Groundwater <sup>5</sup>	62,100
Effective Precipitation	21,000
<b>Total</b>	<b>324,400</b>

<sup>1</sup> Assuming 318,000-acre feet of total applied water and 2% system losses.

<sup>2</sup> Consists of flows from the Kings, Kaweah, and Tule Rivers.

<sup>3</sup> SPW include Table A Entitlement, Carryover, Art 21, and Turnback Pool water, and other water.

<sup>4</sup> Includes Landowner purchases of additional water supplies.

<sup>5</sup> Private water source; the District neither owns nor operates any groundwater wells.

Table 7 indicates the overall crop water use within the District for a Representative water year.

**Table 7.** Water Use in a Representative Water Year

<b>Overall Crop Water Requirement <sup>1</sup></b>
318,000 Acre Feet

<sup>1</sup> Based upon an overall cropping pattern of 120,000 acres and a weighted crop water requirement of 2.65 acre feet per acre of total applied water required.

The following table, Table 8, reflects a water budget summary based upon a representative water year.

**Table 8. Water Budget Summary for Representative Year**

<b>Water Supplies</b>	<b>Volume (Acre Feet) <sup>1</sup></b>
Surface Water	228,200
Exchange Transfers, & Purchases	13,100
Groundwater	62,100
Effective Precipitation	21,000
Total Water Available	324,400
<b>Water Use</b>	
Crop Water Use	318,000
System Losses <sup>1</sup>	6,400
Total Crop Water Use	324,400
<b>New Balance</b>	<b>0</b>

<sup>1</sup> System losses are estimated at 2% and include canal seepage and evaporation.

## **B. Water Supply Quality**

The Kings River Conservation District (KRCD) performs source water quality monitoring on the Kings River. KRCD carries out real- time water quality monitoring immediately downstream of Pine Flat Dam, while periodic monitoring takes place at the South Fork of the Kings River. DWR monitors the water quality of SPW in the California Aqueduct on a monthly basis. DWR's reports, which are made available to the District, contain actual water quality measurements from the water which is conveyed to the District through Laterals A and B. Attachment 6 includes examples of a water quality analysis performed by DWR. Private Water Users monitor their groundwater quality.

# **Section V: Water Accounting and Water Supply Reliability**

## **A. Quantifying the Water Supplier's Water Supplies**

1. District surface water supplies by source are tabulated in Section III A (Table 3) for a period of years.
2. Table 5 summarizes the estimated surface water supplied to lands within the District but also includes the estimated groundwater supply pumped by landowners. The District does not own nor operate any groundwater wells. This summary of water delivered to lands in the District covers a period of years from 1968 through 2014. This summary shows how the source and percentage of each supply varies significantly through the years, particularly wet and dry years.



## **B. Water Supply Reliability**

The District's primary purpose, in addition to protecting, preserving, and enhancing the District's water rights, is to deliver reliable and affordable water. The estimated cropping pattern for a representative water year is 120,000 acres. The additional 50,000 acres of fallow lands, takes into account the flexibility individual Water Users must exercise when preparing annual cropping plans. Since no major permanent crops exist within the District, an additional 50,000 acres could be irrigated when increased water supplies are projected. Crops grown within the District include cotton, tomatoes, alfalfa hay, grains, and seed alfalfa, which require a water supply of approximately 318,000 acre feet annually, for a representative water year. Therefore, the District landowners must conjunctively operate their surface water and groundwater sources to meet their overall water requirement for all water-year types; from flood years to drought years. The varying surface water supply, coupled with the soil types, topography, and the District's location within a closed basin, requires careful and efficient water management. Even with the high irrigation efficiencies of the Water Users, no one water supply source can meet peak irrigation demands. Therefore, the District needs reliable sources of surface water and is continually pursuing additional sources to minimize groundwater pumping.

The local Kings and Tule River supplies are very erratic. In the wettest years the Tule River produces no more than 10,000 acre-feet annually to the District. It is the District and non-District Kings River water supplies that are utilized to a greater degree.

Floodwaters are additional water sources from the local rivers. In wet years, with insufficient reservoir storage on the four local rivers, lower irrigation demands and excess water conditions have caused tens of thousands of acres normally farmed to be flooded. This situation takes place in about one out of every seven years. Even though floodwaters are erratic and occur in unreliable quantities and periods, they do provide some benefit since they can be utilized to irrigate non-flooded lands in the Tulare Lake Bed. See Table 5 which shows the years 1968 – 2014 when floodwaters have been utilized as an irrigation supply.

The Department of Water Resource's Bulletin 118 (Ground Water Basins in California) states that the Tulare Lake Groundwater Basin is over drafted, as are most groundwater basins in the San Joaquin Valley. The District joined several other public agencies and private landowners to form the Tulare Lake Bed Coordinated Groundwater Management to monitor and provide local management of the groundwater basin.

Due to the erratic nature of the local surface water supplies and the continuing groundwater overdraft, the District contracted for SPW with the California Department of Water Resources in 1963 in order to increase surface water supply reliability and reduce reliance on groundwater. State Project Water has become an important water source to meet irrigation demands as illustrated in Table 5. Restrictions caused by the federal Endangered Species Act, and failure of the State to complete the State Water Project, have caused SPW to become less reliable. The District can no longer depend on the ability of DWR to provide the District's full Table A entitlement of 87,471 acre feet. In the

earlier years of SPW deliveries, see Table 5, additional water supplies could often be increased above the Table A entitlement amount when the state experienced greater precipitation and resulting snowpack. This is why the 46 year mean SPW deliveries exceed the current Table A entitlement of SPW water.

The District surface water supply is highly dependent on annual precipitation and snowfall in the Sierra Nevada Mountains and the resulting runoff into Pine Flat Reservoir for Kings River supplies and Lake Oroville for SPW supplies. Because of this dependence, the amount of surface water supplies available to District water users varies from year to year depending on the weather. In most years, the discrepancy between crop water demand and surface water supply is made up through groundwater pumping. In periods of severe drought, water users cannot make up for this lost water from groundwater pumping, and have to fallow ground that normally would be planted in other years because there is not enough water available.

## **Section VI: Climate Change**

Projected long-term impacts of climate change on future water supplies are not definitive. Climate change data indicates over the last century average temperatures have risen by 1.3°F. The same scientists tell us over the next hundred years the temperature could rise from 2 to 11.5°F. This estimated variation in temperature increases indicates there are still a lot of uncertainties and unknowns related to climate change. The question for this water management plan update is whether or not a gradual increase in temperatures will impact the District's future water supplies? There have been wet and dry periods in the past and there is no conclusive answer on what the future holds. In recent years climate change data shows a larger percentage of precipitation coming in the form of intense single day events, and yet the percentage of U.S. land areas experiencing greater than the normal annual precipitation totals increased during the 1895 – 2013 period. Climate change scientists, however, predict there is a greater likelihood the southwest area of the U.S. will have reduced precipitation into the future. The questions are how much less and when will it occur?

The Kings River and State Project Water supplies from the Feather River are the District's primary water supplies. The 2012-2015 drought has created devastating reductions to these water supplies. Water supply information for both the local and SPW are presented in Table 9.

**Table 9.** Current Drought Impacts to Water Supply

Year	Kings River		Feather River	
	50 Yr Avg = 1,224,000 AF		50 Yr Avg = 1,782,000 AF	
	Apr-July Runoff (1,000 A.F.)	% Avg	Apr-July Runoff (1,000 A.F.)	% Avg
2012	650	53%	1,400	80%
2013	430	35%	830	47%
2014	400	32%	540	31%
2015	135	11%	340	19%

However, when the full record of water deliveries including the two years prior to the drought is reviewed, the significant variability in surface water supplies is evident. In 2010 the Kings River had a runoff of 120% and in 2011 a runoff of 168% of the 50 year historic average. For the same period the Feather River had a runoff of 106% in 2011 and in 2012 a runoff of 171% of the 50 year average. But other than commenting on how the drought has severely minimized current water supplies, no one can absolutely say there will be less precipitation and resulting runoff in the future.

It is anticipated gradually warming temperatures may create a gradual decrease in annual snowpack in the higher elevations of the Sierra Nevada Mountains. Both Pine Flat Reservoir on the Kings River and Lake Oroville on the Feather River were constructed for flood control and water supply purposes. Current operation guidelines for each reservoir require during spring flood control operations agreed to storage capacity or water level below the maximum storage capacity water level be maintained during the winter and early spring period to assure there will be storage capacity available for peak rain flood storm activity. As the threat of rain flood storms decreases in the spring the allowable water storage or maximum allowable water surface elevation allowed in the reservoirs is usually increased. In late spring water supply in the accumulated snow pack in the higher elevations begins to melt. Typically the increasing runoff can be estimated and the snow pack runoff stored in the reservoir. If climate change causes temperatures to increase at higher elevations, the snow pack may melt earlier and available storage capacity will need to be maintained in the reservoir longer into the spring to maintain flood capacity for potential rain storm flooding. If this long term climate change scenario does occur in the Sierra Nevada mountains, the annual runoff capable of being stored in existing foothill reservoirs will probably be reduced because there will be less snow pack remaining in the upper elevations for later capture and storage. It may be possible to modify current flood control operations, but if flood control operations cannot be modified in some manner, the quantity of stored runoff would gradually reduce in the future to maintain an acceptable rain flood storage capacity.

In current drought situations District water users usually rely on their groundwater supplies to help make up for surface water shortfalls and reduce or fallow their irrigated acreages to reduce water demand in periods of severe drought.

## **Section VII: Drought Management Plan**

The Governor's Executive Order B-29-15 requires agricultural water suppliers serving more than 25,000 acres include in their Agricultural Water Management Plans a detailed drought management plan that describes the actions and measures the supplier will take to manage water demand during drought.

### **Current District Practices**

The District surface water supply is highly dependent on annual precipitation and snowfall in the Sierra Nevada Mountains and resulting runoff into Pine Flat Reservoir for Kings River supplies and Lake Oroville for SPW supplies. Because of this dependence, the amount of surface water supplies available to District water users can vary from year to year. Tulare Lake Bed landowners make planting/cropping decisions in early spring based on, among other things, forecasted water supplies. During the winter the Kings River Water Association and the Department of Water Resources provide monthly forecasts of anticipated water supply based on storage supplies in the respective reservoirs and accumulating snow pack measurements. By early spring landowners typically have an understanding of their anticipated water supplies.

Water Supply Allocation Policies – Included in Section II, B. Operational Characteristics, Item 4 of this section outlines the information the District can share with landowners on anticipated water supplies during drought conditions and the anticipated water supply reductions.

**State Project Water (SPW):** The District's Water Shortage Allocation Policy for SPW is contained in the District's Amended Rules and Regulations (Attachment 3). The following is an excerpt regarding this water shortage allocation policy:

"...14. Water Shortages Pursuant to powers granted by Section 43004 of the California Water Code, in the event of shortage of Project Water, water will be apportioned to each Water User within District, on a pro rata basis relating to their respective contract quantities of Table A Water..."

**Kings River Water:** The District's scheduled entitlement water available to landowners each year is allocated to each individual Water User based on acreage owned within the District. Each Water User also has access to a share of the District's storage space in Pine Flat and upstream reservoirs, proportionate to lands owned within the District, and manages its own stored water and daily allocated entitlement.

Based on the water supply forecasts provided, each water user manages their own water supply and crop planting decisions. Most Water Users in the District also have water rights in one or more various public or mutual water companies which are also Kings River water rights holders. They are permitted to transfer or exchange water to other users in the Kings River service area. Water Users then conjunctively manage their water supplies, surface water and groundwater, to meet their water demands, utilizing carryover storage when optimal.

In most years the discrepancy between crop water demand and surface water supply is made up through groundwater pumping. In periods of severe drought, however, water users will fallow ground that would normally be planted in other years to reduce the overall water demand and to get by with the supplies that are available.

## Section VIII: Water Use Efficiency Information

### Efficient Water Management Practice (EWMP) Implementation and Reporting

Table 10 provides a brief summary of the EWMPs that the District has implemented. Details on each EWMP are provided in the section below.

**Table 10.** Report of EWMPs Implemented/Planned

EWMP No.*	Description of EWMP	Status of EWMPs
<b>Critical EWMPs</b>		
1	Water Measurement	Implemented
2	Volume-Based Pricing	Implemented
<b>Conditionally Required EWMPs (locally cost-effective and technically feasible EWMPs)</b>		
1	Alternate Land Use	Landowner Implemented
2	Recycled Water Use	Implemented
3	On-Farm Irrigation Capital Improvements	Landowner initiated
4	Incentive Pricing Structure	Not Implemented – Not Planned
5	Infrastructure Improvements	Implemented
6	Order/Delivery Flexibility	Implemented
7	Supplier Spill and Tailwater Systems	Implemented- Grower Supported
8	Conjunctive Use	Implemented
9	Automated Canal Controls	Implemented
10	Customer Pump Test/Evaluation	Implemented – Grower Initiated
11	Water Conservation Coordinator	Implemented
12	Water Management Services to Customers	Implemented – Grower Initiated
13	Identify Institutional Changes	Implemented
14	Supplier Pump Improved Efficiency	Not Implemented or Needed
Notes: *EWMP numbers correspond to (Water Code §10608.48(c) (Water Code §10608.48(d), §10608.48 (e), and §10826 (e))		

## **Critical Efficient Water Management Practices**

Critical EWMP 1 - Water Measurement: The District measures all surface water deliveries at each turnout from the District's conveyance facilities, Laterals A and B, and Kings River. Attachment 7 is a summary of various types of turnouts from the Kings River and Laterals A and B and each respective flow-measuring device. Each type of measuring device is explained in Section II: Description of and Agricultural Water Supplier and Service Area, subheading B. Operational Characteristics, Item 2, Water Delivery Measurements or Calculations. Flowrates are measured using acceptable water measuring techniques, including parshall flumes, venturi meters, and propeller-type flowmeters. For most of the devices, the District field personnel record the flowrate daily using water levels from recorder charts in conjunction with rating tables developed by standard engineering calculations for each respective measuring device. Periodic validations of the measuring devices are made using current meters to verify flow rates compared to the theoretical values from the standard tables. For the propeller-type flowmeter turnouts, the District field personnel read the totalizers during deliveries, recording the flowrates in acre-foot quantities. Deliveries from the data collected by the District are summarized and provided to Water Users in various water-use reports. One form is the Water User letter, which is frequently distributed to provide information on current water issues affecting the District as well as Kings River Water (KRW) and SPW account balances for each Water User. The District works closely with the Water Users to assure that they are continually informed as to deliveries and account balances. The information on SPW deliveries is provided monthly by SPW billings to Water Users. The water accounting for KRW and SPW is updated weekly as headgate deliveries are made and is finalized once the KRW and the DWR respectively prepare their final delivery quantities.

This EWMP is being fully implemented by the District. The District does not own any groundwater wells and does not deliver any groundwater to its water users. Landowners measure the groundwater delivered to their respective lands within the District. Current groundwater use is summarized in Table 5.

The original net benefit analysis prepared by the District determined the EWMP had insignificant environmental, third-party, and indirect economic effects. The District estimates no water savings would result from any further implementation or improvement of this EWMP. As previously discussed, the District is located within a closed basin. The Water Users utilize their internal distribution systems to meet the difference in daily deliveries and use their extensive tailwater recovery systems to maximize the use of available water supplies.

Critical EWMP 2 – Volume-based Pricing: The annual expense of (KRW) includes administrative costs of the Kings River by the Kings River Water Association, the operation of Pine Flat Dam and Reservoir by the US Army Corps of Engineers, and the District's internal operation and maintenance expenses. These total costs are assessed to each landowner/Water User on a uniform per acre basis. The costs of KRW are independent of the annual entitlement or annual amount of the District's KRW delivered. The Water User must pay the assessed charges regardless of the amounts of water

available. The District's annual KRW supply fluctuates depending on the water year type. The Water User's utilize their KRW allocation individually in order to better manage their respective water budgets. Therefore, the District cannot rely on a specific availability of KRW and does not control the utilization of KRW by the Water Users. For instance, during periods of little or no KRW supplies, such as the 2012-2015 drought, delivery of the District's KRW supplies was severely limited. However, in prior wet years, the District received above-normal supplies which were used in-lieu of groundwater pumping. A tiered-pricing system on surface water would have negative impacts on the groundwater basin by encouraging additional groundwater usage. The District cannot implement volumetric pricing on KRW since it neither controls the costs nor the amounts delivered. There are no plans to change the current pricing structure. Furthermore, there would be legal obstacles in implementing it based on current water law. In summary, the erratic nature of KRW entitlement, the delivery flexibility provided to the Water Users, and the historical efficiency of water use further discourages the District from implementing this EWMP.

The District's policy continually emphasizes conjunctive use of District and non-District water supplies in the most efficient manner possible. The District coordinates with other local public agencies and private entities to manage groundwater resources in the area via the Tulare Lake Bed Coordinated Groundwater Management Plan. The Plan focuses on the use of surface water supplies to the fullest extent possible when available. In turn, groundwater is used as a supplemental source during dry years to augment below-normal surface water supplies (e.g. 1976-1977, 1987-92, 2001-2004, and 2012-2015). The District's contract for SPW provides a more reliable surface water supply in addition to the KRW supplies. The District contracted for SPW to reduce groundwater pumping.

Similar to KRW, the District does not control the major costs of SPW. DWR's billing for SPW is based on fixed and variable charges. The payment provisions for SPW are documented in the District's State Water Supply Contract, included as part of Attachment 8. The District's policy on the SPW pricing structure is contained in Short Term Contracts with the Water Users, also included as part of Attachment 8. The SPW fixed charges are determined by DWR and paid monthly by the Water Users, via the District, regardless of the delivered amount of SPW. The District participates with other SWC in reviewing the SPW fixed charges, but it has no actual control of these charges. The SPW variable (energy) charge is based on a unit rate per acre-foot of volumetric water delivered. DWR measures all SPW delivered to the District and, in turn, the District measures the volume of all SPW delivered to the Water Users. Since the Water Users must pay SPW fixed charges, they are, therefore, encouraged to take delivery of SPW in-lieu of groundwater. The high cost of SPW also discourages the waste of water. With respect to SPW, water efficiency is maintained and is even more prominent in the Water User's water management programs.

SPW costs to the District are billed to the water users based on a volumetric basis. The billing is proportionate to the water users respective SPW Table A. Over the past 10 years, various landowners have chosen to sell and permanently transfer their respective SPW Table A amounts to urban water agencies out of the area due to the escalating costs of

the SPW water and the reduced reliability. This is an example of how the increased costs of water can have the unfortunate and unintended consequence of forcing lands out of production despite existing highly efficient uses. Therefore, the District has implemented a water pricing structure based at least in part on the quantity of water delivered.

### **Conditional Efficient Water Management Practices:**

EWMP 1 – Alternate Land Use: Alternative land use is practiced and managed by the private landowners/Water Users within the District. The Water Users explore and evaluate different marketable crops for growing in the District. Since the District is geographically located within a “closed basin” consisting of an abundance of clay soils throughout the surface and subsurface soils, the Water Users must contend with salt accumulation in the shallow root-zones. Water Users can successfully minimize collection of salts in the shallow root zones of the crops by crop rotation, including land fallowing, whereby, different crops with varying effective root-zones are planted in cyclical periods. Crop rotation does minimize the effects of salt accumulation on crops and maximizes the yields and quality of crops grown in the Tulare Lake Bed. In addition, as discussed on the drainage issue, Water Users also practice subsurface drainage using tile drains to reduce salt buildup in the root zone. A significant portion of the lands within the District are also within the Tulare Lake Drainage District. Individual landowners and the Tulare Lake Drainage District manage subsurface drainage issues within the District.

In addition to on-farm crop management, some Water Users participate in the Agricultural Stabilization and Conservation Service’s Wetlands Reserve Program via a Wetlands Reserve Program Easement. The District facilitates this program by providing information to interested landowners who voluntarily choose to participate in the program. The program involves retiring certain lands from farming for the purpose of providing alternative wetland habitat for the benefit of wildlife preservation and some secondary benefits such as floodwater retention. Most lands do not contract for SPW, which is, therefore, reallocated to contracting lands. Thus, the alternative land use provides an additional amount of water that can be beneficially utilized by other Water Users within the District in-lieu of groundwater pumping.

This EWMP is being implemented primarily through crop management by Water Users as a form of alternative land use. Furthermore, the District’s past and future facilitation of alternative land use provides willing landowners with an opportunity to voluntarily participate in the wetlands reserve program. The District was established in 1926 to secure, enhance, and protect the water rights held on the four major tributary rivers on behalf of its landowners. Its responsibilities for the past several decades include management for the administration of Kings River Water and State Project Water. Therefore, it is the District’s intention to provide information regarding alternative land use to interested landowners, but not become involved with governing any such programs; therefore this EWMP while not directly implemented by the District is implemented by landowners through the Tulare Lake Drainage District to address ongoing saline drainage issues.



EWMP 2 – Recycled Water Use: The District has facilitated the ongoing use of recycled municipal wastewater by one of its Water Users in the western portion of the District from both the City of Lemoore and Kettleman City. If the water was not available, the Water User would have to lift irrigation water, thereby incurring increased operational costs and decreased delivery flexibility. By exchange of SPW deliveries to these lands via gravity flow, reduced pumping costs and greater delivery flexibility is provided by the delivery of recycled water to lands within the District. The agreement with DWR to facilitate this exchange is based on an equivalent or a larger quantity of recycled water brought into the District in excess of the quantity of SPW delivered to lands outside the District. The recycled water is not conveyed through any of the District's facilities. This net additional water amounts to less than 0.4% of the total District's water supply and, therefore, is not included as part of the representative water supply.

EWMP 3 – On-Farm Irrigation Capital Improvements: The internal water distribution systems within the District are independently owned and operated by private and public entities. These entities have been farming within the Tulare Lake Bed for several decades and have developed highly efficient irrigation techniques. The intricate systems of irrigation canals and ditches have been developed and improved over the past 80 years. The system can accommodate deliveries of water from several different sources which is necessary due to the erratic local surface water supplies and, more recently, regulatory restrictions on SPW deliveries. The internal distribution systems are also used to store and reuse operational spills and tailwater runoff for subsequent irrigation use. All water supplies are put to beneficial use. Capital improvements to improve the efficiency of on-farm water delivery systems have also been and will continue to be made by water users in the future.

Based upon the level of development of the internal on-farm irrigation systems and the highly efficient irrigation management practices of the Water Users, opportunities for the District to facilitate capital improvements for on-farm irrigation systems are very limited. Furthermore, the District has no financing source to support landowner on-farm irrigation system improvements. Nor has direct legal process been established for the District to provide financial assistance for on-farm improvements.

In addition to the institutional constraint, the process of developing a District project is administratively expensive. The funding for approved projects by the landowners is through District assessments, which would require implementation of a separate project for an assessment program. Legal and engineering consulting will also add to the overall costs. In summary, the restructuring of on-farm irrigation systems for the large farming operations in the Tulare Lake Bed, which have been developed and perfected by individual landowners over several decades, is not feasible. This EWMP is currently implemented by the individual District landowners.

EWMP 4 – Incentive Pricing Structure: The District does not plan to implement this EWMP. For District operations affecting implementation of this EWMP see Critical EWMP 2, Volume Based Pricing.

## EWMP 5 – Infrastructure Improvements:

Line or Pipe Ditches and Canals – The South Fork of the Kings River, which terminates just north of the District's northwestern boundary, is unlined and has been declared a designated floodway by the State Reclamation Board. Therefore, channel losses through the Kings River are uncontrollable by the District. From the point the South Fork of the channel terminates, the District's Kings River supplies are delivered through private and public water distribution systems. In addition, these canals and several ditches convey private water supplies of Kings River water, groundwater, and other local river waters. The several miles of Water User internal open canal water distribution systems are mostly constructed in areas comprised of heavy clay-rich soils and, therefore, preclude any measurable amount of seepage. Therefore, the only feasible canals the District would consider for lining or piping are the District's Laterals A and B, which are used for the conveyance of the District's SPW from the California Aqueduct to the boundaries of the District.

The District owns and operates approximately 15 miles of Lateral A and 8 miles of Lateral B. Approximately 8.3 miles of portions of the two canals are already concrete-lined. The District continually monitors the conveyance losses of deliveries from the California Aqueduct to the various turnouts from the two canals. The District has not measured any significant losses between DWR California Aqueduct deliveries and the District's headgate deliveries at the Water User's turnouts. Over the past 13 year period from 2001 to 2013, the District recorded less than a 1.1% difference between DWR's Aqueduct measurement and the District's measurement from Water Users' turnouts out of Lateral A and B. Based on the above information, current soil conditions, and the size of the canals, it is apparent the District has already achieved a reasonable level of seepage loss prevention from this EWMP.

Automate Canal Structures – The District operates on an arranged demand order-delivery system. Close monitoring of orders, deliveries, and shut-offs are important to the overall success of efficient water use within the District. District field personnel work closely, on a daily basis, with the Water Users to ensure proper flowrates at the time of use. To improve safety and operational flexibility in the delivery of varying SPW supplies from the California Aqueduct, the District has installed nine (9) automatic constant upstream level gates at all of its Lateral B check structures along six miles of lined canal. This has minimized operational costs and minimized long term deterioration of the concrete lining because in most water years the canal remains full most of the time. This improved the efficiency of water delivery by simplifying the ability to change the flow of water in the canal. No manual operation of the canal is required. Weir boards no longer need to be removed and replaced to alter the canal flows providing greater safety to District field workers and by maintaining constant upstream water levels at all times more accurate flow measurements are ensured at canal turnouts.

The major reason for considering automation of additional canal structures is to improve operational flexibility and efficiency by reducing operational spills. The District believes the use of automated turnouts is unnecessary, given the present system has been upgraded over several decades and provides for efficient control of deliveries to the Water

Users. In addition, since the District is in a closed basin, individual Water Users manage all District operational spills or shortages by respectively storing excess amounts and delivering stored water from their internal distribution systems when needed or required. The water is not lost. Thus, constructing additional automated canal structures would not recover water losses or provide further improved water use efficiency in water deliveries. The Water Users are able to do this given their private internal water distribution systems and the high level of flexibility they provide.

In addition to the implementation of automation to the District's facilities, the District also invests in automation of DWR's State Water Project facilities. The automation includes automatic check structures, automatic turnouts, and real-time water level monitoring. The automatic check gates help regulate California Aqueduct pool levels to maintain constant water levels for minimizing turnout operations. The automatic turnouts for Laterals A and B help provide timely and efficient deliveries from the California Aqueduct. The real-time monitoring provides a check on delivery rates for better coordination between Water Users, District field personnel, and DWR field operations.

Given the level of implementation, flexibility in the current water delivery system, basin and irrigation efficiencies, and results from conducting a previous net benefit analysis, the District concludes there are no additional opportunities to further improve water use efficiency at this time.

EWMP 6 – Order/Delivery Flexibility: The District operates on an arranged demand water-ordering system which provides considerable flexibility to the Water Users in their operations. The District works very closely with Water Users in placing water orders with DWR and the Kings River Water Association. The District measures all turnouts while delivering the requested quantities to the Water Users. Operational variances in deliveries are also managed carefully and with proper notifications to the Water Users to eliminate unexpected shortages or operational spills. The existing coordination between the District, its Water Users, and the agencies responsible for the source delivery has worked effectively for several decades and is continually monitored to ensure that operational flexibility is maintained. As a result, this EWMP is implemented at a high level.

EWMP 7 – Supplier Spill and Tailwater Systems: In the hydrologically closed Tulare Lake Bed area where there is no drainage outlet, the Water Users themselves have the ability to absorb spills and tailwater and then apply them at a later time or divert the water to other croplands for irrigation. Due to excellent coordination between the District and the Water User operators, the extensive landowner canal and ditch systems developed within the District provide sufficient operating flexibility for efficient water use. Thus, the District and its Water Users are implementing this EWMP.

The Water Users control and reuse their tailwater for irrigation on other lands within the District. Approximately 10 to 15 percent of the applied waters are collected and reused for subsequent irrigation on other lands within the District. Tailwater recovery has been a standard ongoing practice for over 80 years within the Tulare Lake Bed as a result of the closed basin, low permeable clay soils and the border-strip method of irrigation. The

tailwater is blended with supply water to reduce the higher concentrations of salts in the tailwater and, thereby, minimizing impacts to crop yields and improving the overall water quality deliveries. However, the total salt loading does not decrease, requiring the Water Users to continually manage the salt accumulation by crop management and rotation practices. As a result of the intricate tailwater recovery systems constructed and operated by Water Users, further implementation of tailwater recovery systems by the District is not necessary.

EWMP 8 – Conjunctive Use: Conjunctive use is the District’s primary and oldest water management tool. The conjunctive use practice of delivering surface water during wet years and utilizing groundwater during drought periods has been employed in the District for many decades. This practice provides flexibility to the District and its Water Users as a result of the different District and non-District water supplies available. This is reflected in Attachment 4 which summarizes the total annual surface water and groundwater supplies used by District Water Users from 1969 through 2014. The District’s water supplies to the Water Users are solely surface water. The District neither owns nor operates groundwater wells. All groundwater wells are owned and operated by individual Water Users. Therefore, during successive dry years when local river waters and SPW are limited, the Water Users will utilize groundwater. During the wet years, the District and its Water Users maximize deliveries of surface water in-lieu of groundwater pumping. In-lieu recharge of the groundwater basin is an important part of the Tulare Lake Bed Coordinated Groundwater Management Plan and efficient water management in the District.

Unlike most groundwater banking programs, the District’s ability to directly recharge the groundwater is limited by the geology of the Tulare Lake Bed. As a result, the District’s conjunctive use program is greatly reliant on deliveries of surface water supplies as well as surplus surface water supplies, when available to accomplish the desired in-lieu groundwater recharge. The District takes delivery of varying categories of SPW supplies other than Table A water to enhance its conjunctive use program. The District historically purchases additional imported surface water at costs often higher than the cost of groundwater pumping in order to preserve groundwater supplies for dry year augmentation.

The District and its Water Users continue to utilize surface waters to the maximum extent possible and fully implement this EWMP. Water Users will utilize groundwater during dry periods or during operational or regulatory restrictions on delivery of surface water supplies, such as the federal Endangered Species Act (ESA) restrictions. The District augments these conjunctive use practices by having surface water available whenever possible. Also, it continually promotes greater surface water storage facilities, and the purchase of additional surface water supplies when available.

EWMP 9 – Automated Canal Controls: This EWMP is described as part of EWMP 5, Infrastructure Improvements.

EWMP 10 – Customer Pump Evaluations: The District does not own or operate any water supply pumps. The landowners in most instances coordinate the review and pump testing of their own wells and any other water delivery pumps. The District does provide Water Users with information on meetings and seminars pertaining to pump efficiency testing provided by Southern California Edison, the Pacific, Gas, & Electric Company or Kings River Conservation District.

EWMP 11 – Water Conservation Coordinator: The District's Board of Directors appointed a Water Conservation Coordinator in February 1997, and by a letter dated February 13, 1997, notified DWR of this fact. The Water Conservation Coordinator has worked with District staff, the District's Water Users, its Engineer and other local MOU signatories (water suppliers) in developing the WMP. This EWMP has been implemented.

EWMP 12 – Water Management Services to Customers: The District is not directly involved with on-farm irrigation and drainage issues. The District supports educational programs for Water Users, staff, and the general public in Kings and Tulare Counties. Water Users are continually informed regarding water conditions and District water delivery operations. In addition, the District has actively participates in water awareness and water safety programs, primarily in Kings County.

The majority of water users within the District employ agronomists and other water management professionals directly and there is no demand for the District to provide this service. However, the District does provide information on AGWATER, CIMIS, and other irrigation management tools to the Water Users. On-farm irrigation and drainage issues are managed by other private and public entities. General information is also distributed to the Water Users through other agencies, including the Kings River Conservation District, Department of Water Resources, etc.

EWMP 13 – Identify Institutional Changes: It is the policy of the District's staff to work closely with Water Users on all aspects of water supplies and deliveries. The Board of Directors is actively involved in reviewing and evaluating District policies regarding the protection and enhancement of the District's water supplies. District representatives participate in local water management issues on the Kings, Kaweah, Tule, and Kern Rivers as well as participating in state-wide and local water forum entities such as the San Joaquin Valley Agricultural Water Committee. These entities promote awareness of agricultural and water issues affecting water suppliers and other water entities. The District also works with other State Water Contractors (SWC) and DWR in reviewing and discussing overall SPW operations. The District staff members are involved in several SWC Committee's, including the Water Operations, the Audit Finance, and the Operation, Maintenance and Engineering Committees.

The District has had a long standing relationship with the California Farm Water Coalition to maintain a broad understanding of efficient water management practices. This relationship will not only improve communication amongst water suppliers but will provide a forum of shared knowledge which will be used to enhance the District's WMP.

EWMP 14 – Supplier Pump Improved Efficiency: The District neither owns nor operates any water supply pumps or groundwater wells for water supply delivery. Therefore this EWMP is not implemented.

## Schedule and Budget to Implement EWMPs

The District or its landowners and growers have already implemented most of the listed EWMPs. Therefore, Table 11, Schedule to Implement EWMPs, does not list any future Implementation Schedule, Financing Plan, or Budget Allotment at this time. If in the future any additions to the EWMPs are determined necessary an appropriate schedule and budget will be developed.

**Table 11.** Schedule to Implement EWMPs

(Water Code §10608.56 (d))

EWMP	Implementation Schedule	Finance Plan	Budget Allotment
<b>Critical</b>			
1 – Water Measurement	Implemented		\$0
2 - Volume-Based Pricing	Implemented		\$0
<b>Conditional</b>			
1 – Alternate Land Use	Landowner Implemented	Grower Financed	
2 – Recycled Water Use	Landowner Implemented	Grower Financed	
3 – On-Farm Irrigation Capital Improvements	In-progress: Grower Driven	Grower Financed	\$0
4 – Incentive Pricing Structure	Not Implemented or Planned		
5 – Infrastructure Improvements	Implemented		
6 – Order/Delivery Flexibility	Implemented		
7 – Supplier Spill and Tailwater Systems	Implemented	Grower Financed	\$0
8 – Conjunctive Use	Implemented		
9 – Automated Canal Controls	Implemented: see #5		
10 – Customer Pump Test/Eval.	Grower Implemented	Grower Financed	\$0
11 – Water Conservation Coordinator	Implemented	\$0	\$0
12 – Water Management Services to Customers	Grower Implemented	Grower Financed	
13 – Identify Institutional Changes	Implemented	\$0	\$0
14 – Supplier Pump Improved Efficiency	Not Implemented or Needed	\$0	\$0
<b>Total all EWMPs</b>			

## **Section IX: Supporting Documentation**

### **Agricultural Water Measurement Regulation Documentation (as applicable)**

#### **A. Legal Certification and Apportionment Required for Water Measurement**

District has access to all measuring points, excluding Lateral A and B headgates that are owned and operated by DWR. No Legal Certification is required.

#### **B. Engineer Certification and Apportionment Required for Water Measurement**

District measures or calculates all deliveries volumetrically. No Engineer Certification is required.

#### **C. Description of Water Measurement Best Professional Practices**

Included in Section II: Description of and Agricultural Water Supplier and Service Area, subheading B. Operational Characteristics, Item 2, Water Delivery Measurements or Calculations.

#### **D. Documentation of Water Measurement Conversion to Volume**

Not applicable – all deliveries are metered volumetrically or the volume of flow calculated per stage recorder measurements. See Section II: Description of and Agricultural Water Supplier and Service Area, subheading B. Operational Characteristics, Item 2, Water Delivery Measurements or Calculations.

#### **E. Device Corrective Action Plan Required for Water Measurement**

See Section VIII, Water Use Efficiency Information, Critical Efficient Water Measurement Practices, Critical EWMP 1 – Water Measurement.

#### **Other Documents (as applicable)**

No other documents are required.

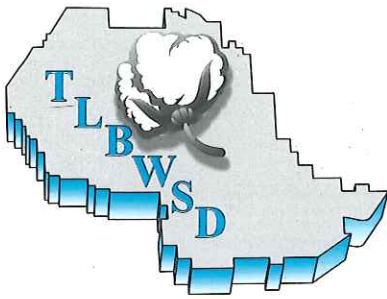
# **ATTACHMENT 1**

## **Preparation and Adoption Documents**

**Notices of Preparation**

**Resolution of Adoption**





# TULARE LAKE BASIN WATER STORAGE DISTRICT

ESTABLISHED SEPTEMBER 1926

1001 CHASE AVENUE, CORCORAN, CALIFORNIA 93212  
PHONE (559) 992-4127 • FAX (559) 992-3891

October 1, 2015

City Clerk  
City of Corcoran  
City Hall  
832 Whitley Avenue  
Corcoran, CA 93212

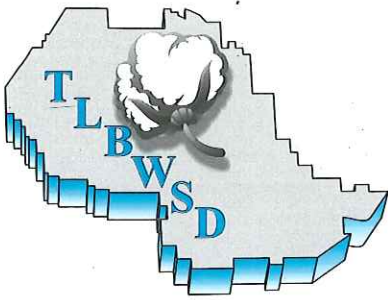
**Re: Notice of Preparation of updating the Tulare Lake Basin Water Storage  
District Agricultural Water Management Plan**

Dear City Clerk:

This letter is being sent to inform you that Tulare Lake Basin Water Storage District is in the process of updating the Agricultural Water Management Plan (AWMP) in accordance with California Water Code 10821(a). Should you have any concerns or wish to provide input, please submit those in writing to the District by October 8, 2015.

Sincerely,

Mark Gilkey  
General Manager



# TULARE LAKE BASIN WATER STORAGE DISTRICT

ESTABLISHED SEPTEMBER 1926

1001 CHASE AVENUE, CORCORAN, CALIFORNIA 93212

PHONE (559) 992-4127 • FAX (559) 992-3891

September 30, 2015

County Clerk  
County of Kings  
Kings County Government Center  
1400 W. Lacey Blvd.  
Hanford, CA 93230

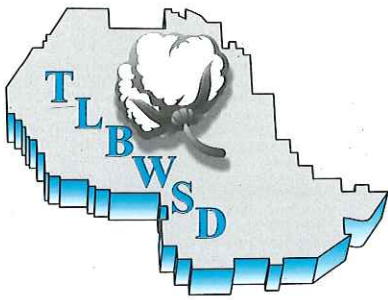
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Sincerely,

Mark Gilkey  
General Manager



# TULARE LAKE BASIN WATER STORAGE DISTRICT

ESTABLISHED SEPTEMBER 1926

1001 CHASE AVENUE, CORCORAN, CALIFORNIA 93212

PHONE (559) 992-4127 • FAX (559) 992-3891

October 1, 2015

County Clerk  
County of Tulare  
County Civic Center  
221 South Mooney Blvd.  
Visalia, CA 93291

**Re: Notice of Preparation of updating the Tulare Lake Basin Water Storage  
District Agricultural Water Management Plan**

Dear County Clerk:

This letter is being sent to inform you that Tulare Lake Basin Water Storage District is in the process of updating the Agricultural Water Management Plan (AWMP) in accordance with California Water Code 10821(a). Should you have any concerns or wish to provide input, please submit those in writing to the District by October 8, 2015.

Sincerely,

Mark Gilkey  
General Manager

## **RESOLUTION NO. 2015-02**

### **RESOLUTION ON ADOPTION OF 2015 SBx7-7 COMPLIANT AGRICULTURAL WATER MANAGEMENT PLAN UPDATE**

**WHEREAS**, this Board of Directors of TULARE LAKE BASIN WATER STORAGE DISTRICT (District) completed an Agricultural Water Management Plan (AWMP) in 2009 pursuant to the Agricultural Water Suppliers Efficient Water Management Practices Act of 1990, AB 3616; and

**WHEREAS**, the District completed an updated AWMP in accordance with the requirements of the Water Conservation Bill of 2009 (SBx7-7) in April 2013 in which the Department of Water Resources (DWR) accepted the Plan; and

**WHEREAS**, the AWMP update conformed to the reorganized framework presented in A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2015 Agricultural Water Management Plan issued by DWR in June 2015 to aid water suppliers in preparing Agricultural Water Management Plans; and

**WHEREAS**, the requirements in SBx7-7 are intended to encourage agricultural water suppliers to assess current efficient water management practices, to evaluate additional practices that may conserve water, and to require a certain level of accurate measurement of water. As such the AWMP process presents an opportunity for water suppliers to demonstrate existing and planned activities and programs designed to improve the effective use of water and water use efficiency; and

**WHEREAS**, included in Section VIII of this updated SBx7-7 plan is a listing of the efficient management practices which have been implemented or planned to be implemented, an estimate of the water use efficiency improvements; and

**WHEREAS**, the District is an authorized local agency and may therefore adopt and implement such an agricultural water management plan; and

**WHEREAS**, the District's 2015 Agricultural Water Management Plan/SBx7-7 Update was prepared at the direction of the District Board; and

**WHEREAS**, a noticed public hearing was held on November 3, 2015, to consider adoption of the proposed 2015 Agricultural Water Management Plan Update; and

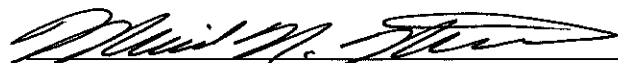
**WHEREAS**, the Board believes that the adoption of the proposed 2015 Agricultural Water Management Plan Update is in the best interests of the District and its landowners;

**NOW, THEREFORE, BE IT RESOLVED** that:

- (1) The foregoing findings, and each of them, are true and correct.
- (2) The District approves and adopts the 2015 Agricultural Water Management Plan in accordance with Part SBx7-7.
- (3) The Board hereby authorizes the officers and staff of the District to execute all documents and take any other action necessary or advisable to carry out the purpose of this resolution.

**I HEREBY CERTIFY** that the foregoing resolution is the resolution of said District as duly passed and adopted by said Board of Directors on the 3<sup>rd</sup> day of November, 2015.

**WITNESS** my hand and seal of said Board of Directors this 3<sup>rd</sup> day of November, 2015.



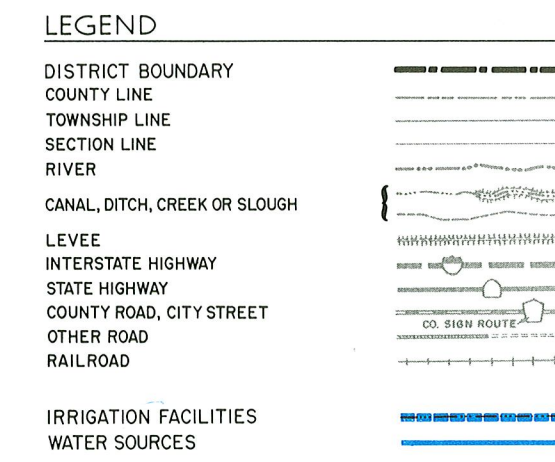
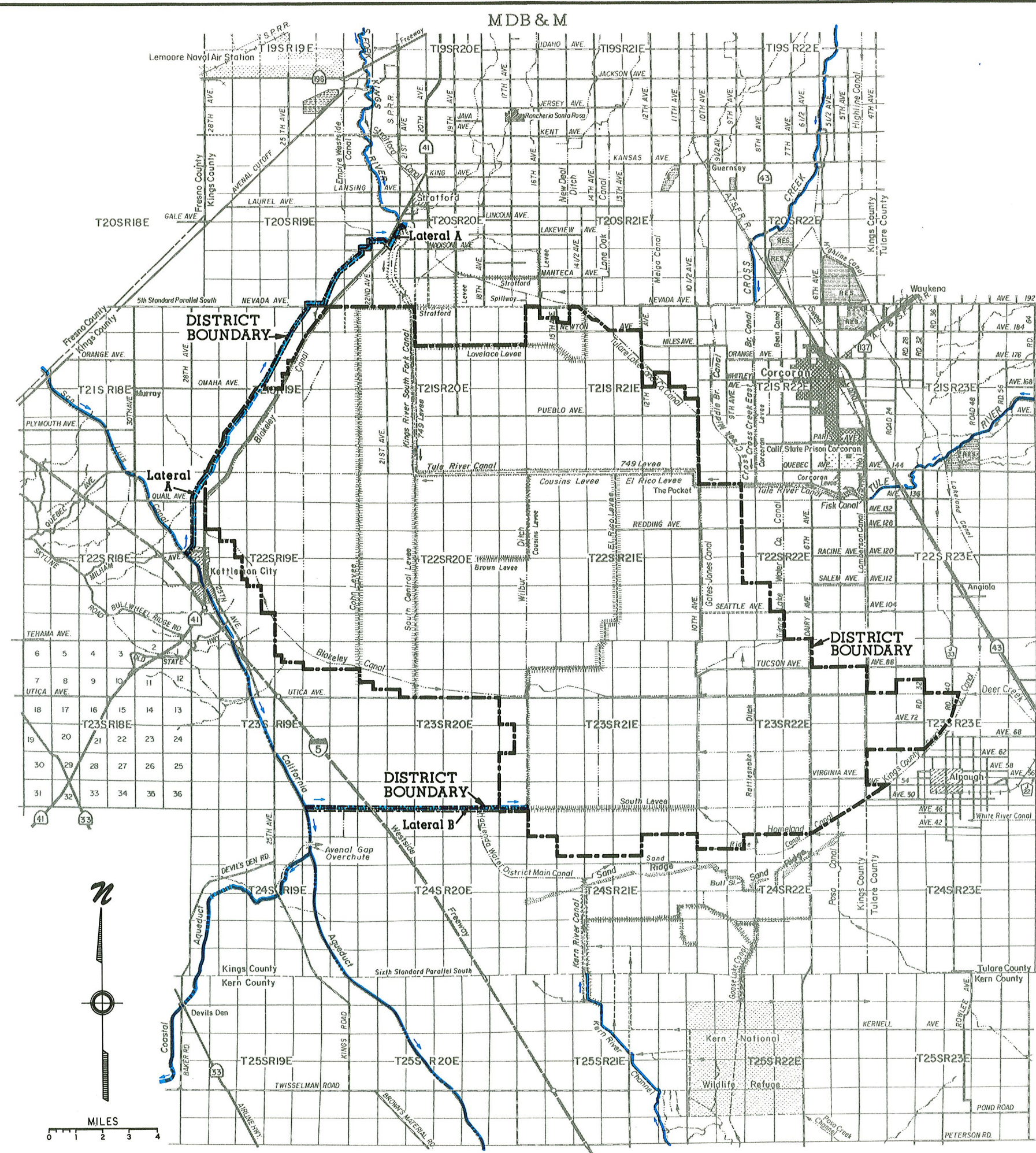
**Michael Nordstrom, Secretary**  
Tulare Lake Basin Water Storage District

## **ATTACHMENT 2**

### **District Map**

### **Tulare Lake Basin Topography Map**





# TULARE LAKE BASIN WATER STORAGE DISTRICT

CORCORAN CALIFORNIA

**SUMMERS ENGINEERING, INC.**  
Consulting Engineers  
HANFORD CALIFORNIA

MAY 1992



# TULARE LAKE BASIN TOPOGRAPHY

SUMMERS ENGINEERING, INC.  
CONSULTING ENGINEERS  
HANFORD CALIFORNIA

JUNE 1969

Revised - May 1992



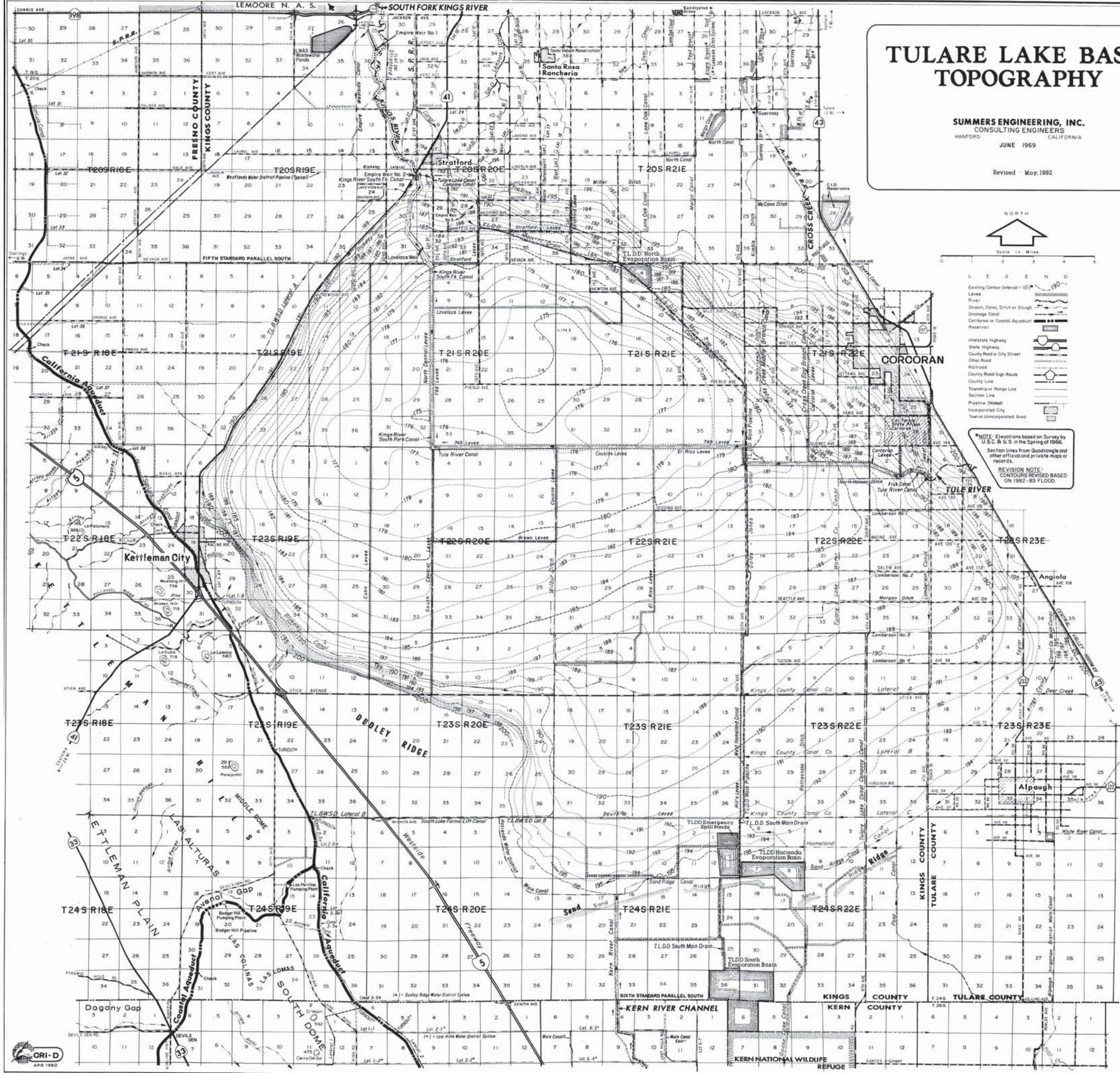
Scale in Miles  
0 1 2 3 4

## LEGEND

- Existing Contour Interval = 10'
- Levee
- River
- Stream, Canal, Ditch or Slough
- Drainage Canal
- California or Coastal Aqueduct
- Reservoir
- Interstate Highway
- State Highway
- County Road or City Street
- Other Road
- Railroad
- County Right of Way
- County Line
- Township or Range Line
- Section Line
- Pipeline (Noted)
- Incorporated City
- Town or Unincorporated Area

\*NOTE: Elevations based on Survey by U.S.C. & G.S. in the Spring of 1966. Section lines from Quadrangle and other official and private maps or records.

REVISION NOTE: CONTOURS REVISED BASED ON 1982-83 FLOOD.





## **ATTACHMENT 3**

### **Thirteenth Amended Rules and Regulations of the Tulare Lake Basin Water Storage District**

**THIRTEENTH AMENDED  
RULES AND REGULATIONS OF THE  
TULARE LAKE BASIN WATER STORAGE DISTRICT  
ADOPTED OCTOBER 2, 2012**

Pursuant to the requirements of Section 43003, Article 1, Chapter 1, Division 14, Water Code of the State of California, the Board of Directors of the Tulare Lake Basin Water Storage District hereby adopts these Rules and Regulations. These Thirteenth Amended Rules & Regulations supersede all previously Adopted Rules and Regulations.

**1. Definitions**

The terms used in these Rules and Regulations shall have the same meaning as those used in the most current Water Service Contracts.

**2. Irrigation Year**

The irrigation year means the twelve-month period from and including January 1 of any year through the 31 of December of said year.

**3. Interlake Agreement**

The District expressly recognizes that a controversy exists as to the meaning and effect of the Interlake Agreement and it is expressly understood that the transmission of water through Laterals A and B to the District for use within the District is not to be and shall not be construed as ownership or operation of distribution facilities within District, and that said controversy is expressly left unresolved and undetermined.

**4. Management Of Project Facilities**

The Project Facilities of District, are under the exclusive management and control of the Board of Directors through its authorized agents, and no other persons shall have any right to interfere with, operate, or manage the said Project Facilities in any manner.

**5. Authorized Agent(s) Of Water Users**

Each Water User who desires water service shall advise the District in writing the names of his authorized agent(s) and such authorized agent(s) may be changed from time to time by the Water User by giving such notice, in writing, to the District.

**6. Policy Regarding Allocation Of Project Water**

It is the policy of the Board of Directors of this District that:

- (a) The District's ability to deliver State Project Water to District's Water Users is limited to the use of Laterals A and B. Nothing herein contained shall ever be so construed as to impose on the District or create for District any obligation or

liability to District's landowners not existing under the adopted Projects of District, the Interlake Agreement, the pertinent provisions of the Water Code of the State of California, or other applicable law. All landowners shall be given the opportunity to receive their proportionate share of District's State Project Water supply and/or other water on a uniform basis per assessed acre, under terms and conditions set forth in the Water Service Contract, except for those lands which have been stripped of the right to contract for State Project Water. Unless a landowner timely enters into a Water Service Contract, the Landowner will be precluded from doing so until the subsequent Water Service Contract is offered.

- (b) In the event that all or a portion of District's State Water Project Table A Water is not subscribed by landowners in accordance with their respective percentages of eligible lands to contract with the District, the other Water Users in District will be afforded the, opportunity to subscribe for quantities in excess of their respective percentages.
- (c) In the event Water Users subscribe for quantities in excess of their respective percentages of eligible lands to contract with the District, as provided for in subparagraph (b) above, the reallocable quantity will be apportioned to said Water Users on a pro rata basis per contracted Table A Water.
- (d) In the event the under-subscribed quantity is in excess of the quantity requested by over-subscribing Water Users, then, and in that event, assessments will be levied from time to time all as provided for in Section 44030 of the California Water Code (California Water Storage District Law). District will, however, make reasonable efforts to dispose of the under-subscribed quantities of water at the best prices available for the accounts of the under-subscribing Water Users.

## **7. Water Orders**

- (a) All Water Users' orders for Project Water, Supplemental Water and Non-District Water deliveries shall be made to the District office or District personnel 24 hours prior to actual delivery. Annual requested monthly deliveries shall be submitted on forms provided, on or before October 1 and May 5 of each year, to allow District to comply with the requirements of the State and District's operational requirements.
- (b) Delivery Schedule requirements of the State include, but are not limited to, the following:
  - (1) On or before October 1 of each year, District must submit in writing to the State a preliminary Table A Water delivery schedule and, if appropriate, a carryover water delivery schedule, indicating the amounts of water desired by the District during each month of the succeeding year.

(2) On December 1 of each year, the State shall determine and furnish to District the water delivery schedule for the next succeeding year which shall show the amounts of Table A Water to be delivered to District during each month of that year.

(3) A water delivery schedule may be amended by the State upon District's written request. Requested amendments shall be submitted by the Water User in time for the District to submit the desired change prior to the month or months the desired change is to become effective, and shall be subject to review and modification by the State in like manner as the schedule itself.

(c) From time to time there may be made available to District other Project Water, including Turnback Water, Article 21 Water, and Supplemental Water from other sources delivered through Project Facilities. The District shall promptly notify the Water Users of the availability and estimated cost of said water and the allocated amounts to each Water User based upon respective percentage of Table A Water. Water Users desiring to participate shall enter into an agreement with the District for the delivery of such water.

(d) It is expected that, under normal operational conditions, and within the limitations of contract obligations and capacities of the Project Facilities, it will generally be possible to accommodate Water Users' requests for water deliveries and changes in daily water deliveries provided that advance notice is given by such Water Users to District in accordance with the operating procedures of the State.

## **8. Continual Delivery**

To the extent practicable, delivery of water shall be made continually, day and night.

## **9. Proration Of Available Capacity**

At any time or location where total Water User requests for delivery capacity in Project Facilities exceeds the actual capacity of Project Facilities, then the actual capacity of Project Facilities will be allocated among those Water Users requesting delivery capacity in proportion to the respective percentages of Table A Water under the Water Service Contracts and any reserved capacity rights relating to the permanent transfer of Table A Water. Water Users may use their allocated share of delivery capacity in Project Facilities to take delivery of any type of water, irrespective of the source.

## **10. Charge For Water Spilled**

If water is ordered, and the Water User is not ready or able to receive water or continue to take delivery at the times of requested delivery, said Water User shall be charged for any water spilled until the State, at District's notification, has effected a change at the Turnout(s) in the California Aqueduct, unless another Water User agrees

to take said water. In the event no other Water User agrees to take said water, District shall notify the State as soon as reasonably possible.

## **11. Termination Of Water Deliveries**

No water will be delivered to a landowner or Water User if he is delinquent in the payment of any District charges, billings, or assessments or is in violation of these Rules & Regulations or in breach of the Water Service Contract.

## **12. Water Transfers/Exchanges**

- (a) Delivery To Lands Outside District Boundaries: Deliveries of water from Project Facilities to lands outside District boundaries shall be made in accordance with the provisions contained in "POLICY RE DELIVERY OF STATE PROJECT WATER TO LAND OUTSIDE OF DISTRICT BY ACTION OF THE BOARD OF DIRECTORS JANUARY 3, 1974" and further specified in "AGREEMENT BETWEEN TULARE LAKE BASIN WATER STORAGE DISTRICT (HEREIN TERMED DISTRICT) AND 'WATER USER' (HEREIN TERMED WATER USER) IN SUPPORT OF REQUEST FOR STATE CONSENT TO DISPOSITION OF PROJECT WATER OUTSIDE THE BOUNDARIES OF DISTRICT", all as may be amended. Copies of both documents are on file in the offices of the District.
- (b) Annual Landowner to Landowner: Water User may annually transfer any portion of his Table A Water to his lands or lands that the Water User farms outside of the District boundaries under the following conditions:
  - (1) The Water User shall provide details of the proposed transfer and obtain permission from the Board or General Manager to make the transfer under the conditions herein;
  - (2) The transfer shall not adversely impact the financial integrity of the District or cause an adverse water or financial impact to other Water Users;
  - (3) The Water User may not increase his historical groundwater pumping capacity within the District as a result of the transfer;
  - (4) If lands are fallowed as a result of the transfer, the Water User shall comply with the District's transfer condition for Fallowed Land Management Practices specified in Paragraph 12 (d)(5) below;
  - (5) The Water User shall pay an administrative and processing fee to the District as determined by the Board;
  - (6) The transfer will be subject to all State, regulatory and other required approvals.

(c) Annual Exchanges: Water User may annually exchange any portion of his Table A Water to another State Water Project Contractor or a non-Contractor under the following conditions:

(1) The Water User shall provide details of the proposed exchange and obtain permission from the Board or General Manager to make the transfer under the conditions herein;

(2) The exchange shall not adversely impact the financial integrity of the District or cause an adverse water or financial impact to other Water Users;

(3) The Water User shall cause an equal amount of surface water from any source, other than Article 21 or Turnback Pool water, to be returned within the boundaries of the District within 4 years of the transfer of the exchange water out of the District. In the event the Water User fails to do so in full within said 4 year period, Water User shall pay the District a non-refundable mitigation fee of \$50.00 for each acre-foot of water not returned and no additional exchanges will be permitted by the District until the return water requirement is satisfied by the Water User or the District. The Board may, in its sole and absolute discretion, grant extensions in the return period based on demonstrated hydrologic hardship conditions. Floodwater entering the local area and diverted by Water User to a beneficial use through irrigation or storage may be utilized as return water.

(4) The Water User shall pay an administrative and processing fee to the District as determined by the Board;

(5) The exchange will be subject to all State, regulatory and other required approvals.

(d) Permanent Transfers Out of the District: Conditions for Permanent Transfers are to assure that the financial integrity of the District is not affected and to prevent adverse water and financial impacts to the other landowners/Water Users by virtue of the transfer. Only those landowners/Water Users that are under a current Water Service Contract may permanently transfer Table A water.

(1) Bond Repayment: Payment in full of principal and interest on any outstanding Bond Assessment for lands identified as no longer having ability to contract for State Project Water.

(2) District Annual Operation and Maintenance (O & M): A one-time O & M mitigation fee shall be paid to the District to avoid annual O & M costs from being shifted to other landowners/Water Users. Calculation of the fee shall be based on a term of 35 years, at an interest rate based on the U.S. Money Rate 30-Year Treasury Bonds, as published in The Fresno

Bee, seven days prior to the targeted close date, and a District O & M inflation factor based on the District's O & M Costs from 1991 forward.

In lieu of paying the one-time O & M mitigation fee to the District, the landowner may, under an agreement with the District and the Transferee, continue to annually pay the District O & M charges, provided the transferred SWP Table A Entitlement water right or other adequate security for such payment is provided under terms and conditions acceptable to the Board. The estimated annual O & M charges shall be paid in advance on or before January 1 of the contract year. The landowner may elect to cease annually paying the District's O & M charges by paying a one-time O & M mitigation fee. Said fee shall be calculated and based on a 35 year period commencing from such election. Upon payment of the one-time mitigation fee, landowner shall then have the right to continue utilizing the allocated capacity for a period of 35 years as provided below.

- (3) *District's Project Facilities Capacity:* In the event landowner has paid the one-time O & M mitigation fee provided for above, landowner shall for a period of 35 years retain the right to utilize the capacity in the District's Project Facilities that would have been allocated to the landowner absent the transfer of the State Project Table A Entitlement water. Such capacity may be used for deliveries inside or outside of the District boundaries. At the end of said 35 year period, landowner shall release and no longer have the right to utilize the subject capacity.

In the event the Transferee enters into an agreement with the District to annually pay the District's O & M charges, the transferring landowner shall retain the right to utilize the capacity in the District's Project Facilities that would have been allocated to the landowner absent the transfer of the State Project Table A Entitlement water, provided the landowner (or the party responsible under the agreement) remains current.

- (4) *Groundwater Impacts:* The future use of the landowner's groundwater wells within the District shall be limited to the landowner's historic maximum pumping capacity within the District prior to any permanent transfer of the State Water Project Table A Entitlement Water right. The landowner and the District shall verify and document the historic maximum pumping capacity prior to the close of the transfer. The landowner may only increase the documented pumping capacity with the prior approval of the District's Board of Directors. A notice of this limitation shall be recorded against the landowner's lands within the District.
- (5) *Fallowed Land Management Practices:* Customary and accepted farming practices (Management Practices) such as disking, planting native grasses, etc., shall be implemented, if necessary, on designated lands

that are fallowed as a result of the permanent transfer to avoid harm to adjoining landowners. The landowner shall annually designate such fallowed lands not later than April 1 by providing notice of such designation to the District. Nothing in this section of the Conditions shall require the landowner to fallow lands.

The amount of such designated fallowed lands shall be calculated based on an assumed irrigation rate of 2.4 acre-feet per acre. For example, if the landowner does not have sufficient water supplies to continue farming his historical cropped acreage, after permanently transferring 1,000 acre-feet of State Project Table A Entitlement Water, the maximum amount of designated fallowed lands that shall be subject to the above required Management Practice shall be determined as follows:

$1,000 \text{ acre-feet} / 2.4 \text{ acre-feet per acre} = 417 \text{ designated fallowed lands}$

Notwithstanding the foregoing, the landowner shall only be required to implement the Management Practices on the area of the designated fallowed lands that physically lies within  $\frac{1}{2}$  mile of another Water User's cropped lands (buffer zone), unless said Water User agrees otherwise. For example, if a landowner fallows as a result of a transfer and designates 500 acres of which only 200 acres physically lie within the  $\frac{1}{2}$  mile buffer zone, the landowner is only required to implement Management Practices on the 200 acres within the buffer zone.

The landowner shall enter into a recorded agreement with the District to insure the appropriate Management Practices within the buffer zone are implemented. In the event the landowner fails to implement the Management Practices after 30 days written notice to do so from the District, the District may take whatever action it deems reasonably necessary to implement the required Management Practices and bill the landowner for all of its costs, including its out-of-pocket costs, administrative costs and legal fees. If the landowner fails to reimburse District within 30 days of billing for said costs, the District may enforce lien rights on the entire designated fallowed acreage. Such lien rights shall include the right to foreclose.

In addition to the aforescribed lien rights against the designated fallowed lands, the District may withhold and dispose of the Kings River Water supplies allocated to the designated fallowed lands by the District. Any revenues received from the disposition of said Kings River supplies shall be first applied toward the District's costs provided for above. Any excess revenues shall be returned to the landowner. Notwithstanding the foregoing, the District may exchange said Kings Water supplies with another landowner to perform the Management Practices on behalf of the District.



- (6) *Deed Restrictions:* The Landowner shall designate lands that shall be stripped of any further right to contract for State Project Water with the District by a recorded deed restriction. The duty of Table A Water is deemed to be 0.64 acre-feet per acre for calculating the amount of acreage to be stripped of the right to contract.
- (7) *Administrative and Processing Fee:* The Water User shall pay an administrative and processing fee to the District as determined by the Board.
- (8) *Right of First Refusal:* Landowners proposing to permanently transfer Table A water out of the District shall present the proposed transfer to the Board for review to determine if it is consistent with the District's transfer policy and rules. The landowner shall provide a copy of the executed transfer agreement to the District. The District shall in turn make a copy of the transfer agreement to the other landowners in the District (non-transferring landowners) and the other SWP Contractors in Kings County who shall have a 30 day first right-of-refusal to buy all or a portion of the Table A amount proposed to be transferred on the same terms and conditions as being proposed. Landowners in the District shall have priority over the other SWP Contractors in the County.

### **13. Kern River Water Settlement Agreement**

Project Facilities may be used to convey water made available to District under the terms of the Supplement to Kern River Water Settlement Agreement dated August 15, 1974. The money or water received by the District under the Kern River Agreement shall be allocated in proportion to the assessed acreage in the District.

### **14. Kings County State Project Water Exchange and Kings River Buy Back Agreement**

Project Facilities may be used to convey water made available to District under the Agreement dated April 26, 1967, by and between the County of Kings of the State of California and the District. The Kings River water and State Water Project water to be exchanged under said County of Kings Agreement and the buy back of the Kings River water under the December 23, 1980, agreement between the County of Kings and certain local water entities shall be administered in accordance with the AWD vs. TLBWSD Settlement Agreement dated December 15, 2009 (Kings County Superior Court, Central Division, Case No. 08 C-0175). A true and correct copy of said settlement agreement is available at the District's office presently located at 1001 Chase Ave., Corcoran, CA 93212, and is incorporated herein by this reference as though fully set forth herein.

## **15. Other District Water Supplies**

Except for (1) District State Water Project supplies under its water supply contract with the Department of Water Resources, including District's Table A Amounts and all other supplies made available to the District based on its Table A Amounts and (2) the County's Table A Amounts made available to the District under the 1967 District-County Exchange Agreement for the term specified in the AWD vs. TLBWSD Settlement Agreement, any and all other water available to the District, whether now existing or subsequently becoming available at any time in the future, (including, but not limited to, (1) the County's Article 21, Turnback Pool, Yuba Accord water and all other waters arising under the County's contract for SWP water supplies, whether made available to the District under the 1967 District-County Exchange Agreement [including any renewals or extensions] or otherwise, (2) the Kern River Settlement water, and (3) the District's local river supplies), shall be allocated and apportioned to all District landowners in proportion to their respective assessed acreage of land in the District, unless the District is required by law, or for reasons beyond its control, to allocate such supplies in some other manner.

## **16. Grievances**

Any grievance or complaint of a Water User that cannot be settled directly with the Operations Superintendent, shall be appealed to the General Manager and, from his decision, appeal may be made to the Board of Directors, provided, however, no such Water User shall be precluded from taking any legal action available in a court of competent jurisdiction after exhausting these administrative remedies.

## **17. Inspection Of Records**

Landowners/Water Users may inspect water and financial records at the District's office during regular business hours, except for those documents protected under the Public Records Act.

## **18. Water Shortages**

Pursuant to powers granted by Section 43004 of the California Water Code, in the event of a shortage of Project Water, water will be apportioned to each Water User within District, in accordance with the AWD vs. TLBWSD Settlement Agreement.

## **19. Responsibility For Damage To District Property**

Each landowner/Water User shall be responsible to District for all damage to District property caused by negligent or careless acts of himself or his agent. All such damage will be repaired by District or to District's specifications and the cost thereof shall be borne by the landowner and/or Water User.

## **20. Limitations Of District Responsibility**

District shall not be liable for any damages of any kind or nature resulting directly or indirectly from any private ditch or the water flowing therein, or for negligent, wasteful or

other use or handling of water by the users thereof. District's responsibility shall absolutely cease when the water leaves the Project Facilities.

## **21. Encroachment On Project Facilities**

- (a) No opening shall be made or structure placed in any Project Facilities, except by District, or without written approval of the District's Board of Directors.
- (b) A permit for encroachment shall be required before any irrigation or drainage ditches, fences, pipelines, or other encroachments from private sources will be permitted to be used within any District right-of-way.
- (c) The work for all encroachments on Project Facilities shall be constructed and maintained to District's specifications at the sole expense of the applicant.
- (d) Any person using any District right-of-way for any purpose assumes all risk of so doing and by his use accepts responsibility for any damage to District property resulting therefrom and also for any damage or claims of damage to private property caused by such damage to District property.
- (e) Any landowner/Water User constructing or doing work on District right-of-way or Project Facilities shall first enter into an agreement which shall, among other things, provide a hold harmless to the District.
- (f) Access roads along Laterals A and B banks may be used by landowners at such time and in such a manner that neither the road nor the bank is damaged, within terms and conditions to be set from time to time by the Board.
- (g) No livestock may be pastured, or allowed to trespass, upon Project Facilities at any time.
- (h) No waste of any kind shall be either dumped into Project Facilities or placed on or adjacent to the banks of Project Facilities where it might fall, slide or be blown into the Project Facilities.
- (i) No tail water from any source shall be spilled into Project Facilities, except by District or with the written approval of the District's Board of Directors.

## **22. Non-District Water Charge**

The District shall bill non-Water Users a wheeling charge, at a unit rate to be set by the Board of Directors, for water conveyed through Project Facilities. Water Users will not be billed for Non-District Water conveyed through Project Facilities.

## **23. Authority Of Rules And Regulations**

- (a) These Rules and Regulations, among other things, govern the water under the Water Supply Contract between the State of California, Department of Water

Resources, and Tulare Lake Basin Water Storage District, and the Water Service Contract between the District and its Water Users, and any amendments to the foregoing. In the event of a conflict between such Contracts and these Rules and Regulations, reconciliation amendments shall be adopted as soon as reasonably possible. In the event the conflict is not or cannot be reconciled, the Water Supply Contract and the Water Service Contract shall govern.

- (b) Pursuant to said Section 43003 of the Water Code of the State of California, District may enter into water service contracts with landowners in District, which contracts may, in the discretion of the Board, provide, among other things, that the obligations are a lien on the land with the same force and effect and priority as an assessment lien if such contract is recorded in the office of the County Recorder in the County in which such land is situated and such contracts may provide for delivery of water outside District's boundaries as contemplated by Article 15(a) of the Water Supply Contract and the obligations resulting from such deliveries may likewise be secured by a lien on lands within the boundaries of District. The Water Service Contracts entered into between District and Water User shall be recorded.

#### **24. Changes In Rules And Regulations**

Except as these and future District's Rules and Regulations may be subject to limitations set forth in judicial decrees or litigation settlements, including with respect to District's future water allocations, these Rules and Regulations shall become effective immediately and may be changed from time to time by resolution of the District's Board of Directors.

#### **25. Enforcement Of Rules And Regulations**

The General Manager of District shall be responsible for the enforcement of the Rules and Regulations. Refusal to comply with any of the Rules and Regulations shall be sufficient cause for the termination of water service, and water service shall not again be furnished until full compliance has been made with all the requirements herein set forth. In no event shall any liability accrue against District or any of its officers, agents, or employees, for damage, direct or indirect, arising from such temporary discontinuance or reduction of water deliveries; provided, however, that liability of District hereunder shall be governed by and under the provisions of the Government Code of the State of California, commonly known as the "Claims Against Public Entities Statute", Section 810 et seq. of said Code and applicable law with respect thereto and as said Code and law may be interpreted by courts of competent jurisdiction; and, provided further that in the event a grievance or complaint is being processed pursuant to Section 12 hereof, any action hereunder shall be suspended pending decision of the Board of Directors.

**END OF DOCUMENT**

## **ATTACHMENT 4**

### **Tulare Lake Basin Water Storage District Summary of Surface Water Supplies and Groundwater Deliveries to Lands within the District**

**Tulare Lake Basin Water Storage District**  
**Summary of Surface Water Supplies and Groundwater**  
**Deliveries to Lands Within the District**

<b>WATER YEAR (Oct. – Sept.)</b>	<b>SURFACE WATER SUPPLIES 1\ (AF)</b>	<b>GROUNDWATER SUPPLIES (AF)</b>
1968–1969	110,000	41,000
1969–1970	216,000	0
1970–1971	264,000	0
1971–1972	280,000	66,000
1972–1973	302,000	3,000
1973–1974	294,000	3,000
1974–1975	365,000	3,000
1975–1976	259,000	104,000
1976–1977	92,000	210,000
1977–1978	225,000	74,000
1978–1979	334,000	2,000
1979–1980	365,000	3,000
1980–1981	353,000	40,000
1981–1982	409,000	10,000
1982–1983	319,000	0
1983–1984	317,000	0
1984–1985	374,000	5,000
1985–1986	329,000	2,000
1986–1987	325,000	27,000
1987–1988	209,000	134,000
1988–1989	215,000	162,000
1989–1990	170,000	175,000
1990–1991	61,000	228,000
1991–1992	118,000	216,000
1992–1993	226,000	90,000
1993–1994	250,000	92,000
1994–1995	277,000	58,000
1995–1996	415,000	0
1996–1997	289,000	0
1997–1998	261,000	0
1998–1999	344,000	0
1999–2000	371,000	18,000
2000–2001	259,000	100,000
2001–2002	160,000	160,000
2002–2003	210,000	125,000
2003–2004	183,000	170,000
2004–2005	316,000	10,000
2005–2006	303,000	0
2006-2007	320,000	74,000
2007-2008	123,000	255,000
2008-2009	111,000	151,000
2009-2010	234,000	99,000
2010-2011	330,200	18,000
2011-2012	232,000	89,000
2012-2013	111,000	196,000
2013-2014	46,000	162,000
<b>Total (A.F.)</b>	<b>11,676,200</b>	<b>3,375,000</b>
<b>% OF TOTAL ANNUAL SUPPLIES</b>	<b>78%</b>	<b>22%</b>

1\ Includes Residual Floodwaters, Local Rivers Water, State Project Water and Other Surface Waters.

## **ATTACHMENT 5**

### **Tulare Lake Bed Coordinated Groundwater Management Plan (SB 1938 Compliant)**

**TULARE LAKE BED  
COORDINATED  
GROUNDWATER MANAGEMENT PLAN  
(SB 1938 COMPLIANT)**

**Adopted  
7/27/12**

July 27, 2012



**TULARE LAKE BED  
COORDINATED  
GROUNDWATER MANAGEMENT PLAN  
(SB 1938 COMPLIANT)**

**Adopted  
7/27/12**

July 27, 2012

Prepared by:

SUMMERS ENGINEERING, INC.  
CONSULTING ENGINEERS  
HANFORD, CALIFORNIA

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## I. INTRODUCTION

Participants in this Coordinated Groundwater Management Plan (the Plan) consist of water agencies and private landowners located within the Tulare Lake area. Due to the unique geology, topography, and water resources in the Tulare Lake area, the participants have elected to manage their groundwater resources under a single coordinated plan. Figure 1 is a location map of the Tulare Lake sub-basin and the Plan boundary. Plan participants are listed as follows and a brief summary about each participant is provided at the end of this chapter.

- Alpaugh Irrigation District
- Angiola Water District
- Atwell Island Water District
- City of Corcoran
- Corcoran Irrigation District
- Lovelace Reclamation District #739
- Melga Water District
- MOU Private Lands
- Salyer Water District
- Tulare Lake Basin Water Storage District
- Tulare Lake Reclamation District #761

### Plan Authority

Agencies participate in the Plan in accordance with the terms of a Joint Powers Agreement (JPA) entered into pursuant to California Water Code Section 10755.2 which provides for adoption and implementation of coordinated groundwater management plans. The JPA allows for amendments to include additional local agencies, public and private entities, and private parties as participants in the Plan. Private landowners participate in accordance with the JPA and a Memorandum of Understanding (MOU). Tulare Lake Basin Water Storage District is the administrator of the Plan.

The Plan was first adopted and implemented in 1997 under California Water Code Sections 10750 et. seq., which includes codification of California Assembly Bill 3030. This document updates the original Plan to comply with requirements of California Senate Bill 1938, which amended the Water Code in 2002.

### Purpose

The coordinated approach provides a framework for the local management of groundwater resources, allowing participants to collectively pursue Plan objectives versus each agency implementing its own groundwater management activities. A key element of the Plan is monitoring of groundwater levels. Plan participants conduct quarterly meetings and monitoring data is disseminated annually to neighboring groundwater management agencies and the State. The Plan also includes preparation of an annual report describing water supplies and groundwater levels. By coordinating monitoring and reporting activities, plan participants are kept apprised of groundwater conditions and are able to optimize their management of available water supplies. The regular dissemination of data also serves to establish and maintain a line of communication between the Plan participants and other local or State agencies.

Historically the Tulare Lake Bed area has conjunctively managed its water supplies to maximize the importation of surface water for irrigation so groundwater usage can be minimized. These activities are documented in the annual report as Plan participants continue to use conjunctive water management in the area.

Another goal of the Plan is to preserve local management of groundwater resources in the Tulare Lake Bed area. The JPA, which allows other public and private entities to join the Plan, encourages local stakeholder involvement in managing groundwater.

## Plan Participants

### **Alpaugh Irrigation District**

Alpaugh Irrigation District (AID) was formed in March of 1915 and is located in the southeastern portion of the Plan area. Figure 2 is a location map of AID's boundary. AID obtains water from the Friant-Kern Canal as a US Bureau of Reclamation (USBR) Class II Contractor, as well as periodic flood release water known as the USBR's Section 215 water. This water can be delivered to the entire District. Deer Creek occasionally provides some unregulated waters during periods of heavy precipitation and high runoff. Deer Creek is also used as AID's conveyance facility for delivery of USBR Water. AID owns and operates eighteen wells which provide the major portion of its water supplies. The wells extend below the Corcoran clay to an average depth of 1,500 feet. AID has ponds that capture and recover local surface water supplies and provide incidental groundwater recharge.

### **Angiola Water District**

Angiola Water District (AWD), formed in November of 1957, owns and operates all the irrigation wells within its boundaries. Figure 3 is a location map of AWD's boundaries. The wells are located in well fields owned by AWD on both the east and west sides of Highway 43. The wells east of Highway 43 are generally considered to provide better quality water. Currently, the wells have a combined pumping capacity of approximately 100 cubic feet per second (cfs). All but seven of the wells draw water from the confined aquifer below the Corcoran Clay and range in depth from 850 to 1,850 feet.

Groundwater is used to supplement AWD's surface water supplies from the State Water Project (SWP), Central Valley Project (CVP), Kings River, Tule River, Deer Creek, and residual floodwaters from Tulare Lake. As the representative of lands within its boundaries, AWD receives a percentage of Kings River Water and SWP Water from the Tulare Lake Basin Water Storage District. AWD holds a permit for diversions from Deer Creek and is one of only two permitted

appropriators thereof. Deer Creek, Tule River, and Kings River water is available to AWD dependent on the local hydrologic conditions.

### **Atwell Island Water District**

The Atwell Island Water District (AIWD) was established in 1977. Figure 4 is a location map of AIWD's boundary. All wells within AIWD are owned and operated by the landowners or their farmer tenants. These are deep wells which are perforated below the Corcoran Clay. AIWD started receiving Federal water in June of 1978 after entering into a water service contract with the USBR, through the County of Tulare. The USBR contract provides for a maximum of 1,055 acre-feet of water to be transported annually through the San Luis Canal and California Aqueduct to the Cross Valley Canal. Rather than taking delivery from the Cross Valley Canal, AIWD exchanges its USBR water with Arvin-Edison Water Storage District and receives deliveries from the Friant-Kern Canal.

In June of 1993 AIWD, together with Hills Valley Irrigation District, entered into a contract with Tulare County for additional USBR water available for delivery within Cross Valley Canal. Through this agreement, both districts contracted for an additional 954 acre-feet of surface water annually.

AIWD has also periodically contracted for surplus USBR water through temporary water service contracts.

### **City of Corcoran**

The City of Corcoran was incorporated in 1914. The City is approximately 7.5 square miles (4,800 acres). Figure 5 is a location map of the City limits. The California State Prison Corcoran, with approximately 5,000 inmates, and the California Substance Abuse Treatment Facility and State Prison Corcoran, with an inmate population of approximately 7,000, are included in the City limits.

The sole source of water for the City of Corcoran's municipal water service is two well fields located northeast of the City. The City currently utilizes five wells. Two other existing wells are being rehabilitated or replaced. Annual pumping from the City's wells is approximately 6,427 acre-feet. The City's service population is approximately 25,900 people, including the two Department of Corrections units and some residents located outside the City limits.

The City has voluntarily implemented a water conservation policy that includes among other provisions, prohibitions against water waste, domestic irrigation restrictions and City Manager authority to require property owners and/or water users to utilize certain restrictions on their water use.

The City provides for groundwater recharge through the operation of a storm water drainage basin and wastewater basins. The City has also required the use of treated wastewater by the California State Prison Corcoran for irrigation of alfalfa fields in-lieu of groundwater pumping.

### **Corcoran Irrigation District**

Corcoran Irrigation District (CID) was formed in July of 1919. Figure 6 shows the location of CID. CID owns and operates storage and percolation reservoirs totaling 3,000 acres, with a surface storage capacity of approximately 10,000 acre-feet. The reservoirs can recharge up to 200 acre-feet daily and are a key part of CID's conjunctive water management program.

CID's available surface water supplies include Kings River water, Kaweah River water, and supplemental water available from the Kaweah Delta Water Conservation District and others as well. CID has a contract with the USBR to access USBR Section 215 water when available. In most years the principal source of water to CID is Kings River water derived from stock held in the Corcoran Irrigation Company, Peoples Ditch Company, and other mutual water companies on the Kings River.



CID maintains a well field of both shallow and deep wells located northeasterly of the City of Corcoran. The Corcoran Clay is approximately 50 feet thick and at a depth of 500 feet below the well field. The shallow wells tap the unconfined aquifer located above the Corcoran Clay while the deeper wells penetrate the confined aquifer below the clay and produce the majority of CID's groundwater supplies.

#### **Lovelace Reclamation District #739**

Lovelace Reclamation District #739 (LRD) encompasses approximately 5,900 acres located immediately north of Tulare Lake Basin Water Storage District. The location of the LRD's boundary is shown on Figure 7. The primary purpose of LRD is flood control. However, lands within LRD receive local surface water and State Water Project water. There are privately owned groundwater wells within the LRD boundary.

#### **Melga Water District**

Melga Water District (MWD) encompasses approximately 75,000 acres, most of which lie within the boundaries of the Tulare Lake Basin Water Storage District. MWD's boundaries are indicated on Figure 8. MWD was formed in January of 1953. Approximately 7,200 acres of MWD is outside of the Tulare Lake Basin Water Storage District's boundary in the northeastern part of the Plan area.

The surface water supplies available to lands within MWD include State Water Project water and Kings River water. Lands in MWD also periodically receive water from the Kaweah and Tule Rivers.

Privately owned and operated groundwater wells are located within MWD and provide supplemental irrigation water during water-deficient periods.

### **MOU Private Lands**

There are approximately 10,300 acres of MOU lands within the Plan boundary as shown on Figure 9. These landowners requested that their lands be brought into the Plan because a part of their land was not included or they preferred to have all of their lands included under a single plan. Available water sources for MOU lands include local surface water, State Water Project water, and groundwater.

### **Salyer Water District**

Salyer Water District (SWD) encompasses approximately 10,400 acres. Its boundaries are indicated on Figure 10. A portion of the acreage lies inside the boundary of Tulare Lake Basin Water Storage District with the remaining acreage located in the northeastern portion of the Plan area. Lands within SWD can receive local surface water and State Water Project water. Some privately owned groundwater wells are located within SWD.

### **Tulare Lake Basin Water Storage District**

The Tulare Lake Basin Water Storage District (TLB) was formed in September of 1926, at which time nearly all the lands within its boundaries were in agricultural production. TLB has water and storage rights on the Kings and Tule Rivers. TLB's primary source of local surface water is considered to be the Kings River. Figure 11 is a location map of the TLB boundary.

TLB's Kings River water right is held under the Empire Weir No. 2 account and TLB is one of the twenty-eight member units of the Kings River Water Association (KRWA). This water right is erratic in nature, providing substantial water in years of moderate to heavy precipitation, while providing little or no water in years of below average precipitation. TLB's average Kings River entitlement totals approximately 58,500 acre-feet per year. Some lands within TLB also receive deliveries of Kings River water from other KRWA units (water rights).

TLB contracted with the California Department of Water Resources in 1963 to provide a more dependable surface supply for its landowners and to reduce reliance on groundwater. TLB's annual State Water Table A 2012 entitlement totals 88,922 acre-feet. Deliveries of State Water Project (SWP) water began in 1968. TLB delivers substantial quantities of surplus State Water Project water when available. TLB neither owns nor operates any wells. When sufficient surface water supplies are available almost no groundwater is pumped by TLB's water users. It should be noted that this is true for most of the Plan participants.

### **Tulare Lake Reclamation District #761**

Tulare Lake Reclamation District #761 (TLRD) encompasses approximately 35,000 acres, nearly all of which lie within the boundary of Tulare Lake Basin Water Storage District. Figure 12 is a location map of the TLRD boundary. Lands within TLRD can receive local surface water and State Water Project water. TLRD's average Kings River entitlement is approximately 24,500 acre-feet per year. There are some privately owned groundwater wells within TLRD's boundary.

## II. MANAGEMENT AREA

### Location

Figure 1 is a location map of the Coordinated Groundwater Management Plan (Plan) area boundary. The Plan area is roughly bounded by the Kings County line on the east, Interstate 5 and Highway 41 on the west, Lansing Avenue on the north, and Wichita Avenue on the south (also Tulare Lake Basin Water Storage District's Lateral B Canal). Some participants' boundaries extend beyond this rough perimeter.

### Climate and Hydrology

The climate in the region is typical of the southern San Joaquin Valley. The Tulare Lake Bed region is semi-arid. Average annual rainfall is 7.4 inches. Spring seasons are usually mild with some wind, summers are hot and dry, autumns are cool, and winter seasons are typically characterized by fog and rain with temperatures seldom dropping below the freezing point.

Corcoran Irrigation District measures and records precipitation and maximum and minimum temperatures at a station near the eastern boundary of the Plan area. Historic data from this site is presented as follows in Tables 1 and 2. Average monthly rainfall varied from 0 to 1.47 inches. Approximately 70% of the rainfall typically occurs during the months of December through March. Average maximum and minimum temperatures occur respectively during July and December.

**Table 1**  
Average Precipitation from 1931 to 2011

<b>Month</b>	<b>Average Precipitation (inches)</b>
January	1.47
February	1.44
March	1.18
April	0.68
May	0.22
June	0.04
July	0.01
August	0.03
September	0.14
October	0.37
November	0.69
December	1.16
<b>Average Annual Precipitation</b>	<b>7.42</b>

Source: Corcoran Irrigation District records

**Table 2**  
Average Maximum and Minimum  
Monthly Temperatures from 1948 to 2010

<b>Month</b>	<b>Average Maximum Temperature (°F)</b>	<b>Average Minimum Temperature (°F)</b>
January	55	37
February	62	40
March	68	43
April	76	47
May	85	53
June	93	59
July	99	63
August	97	62
September	91	57
October	81	49
November	66	41
December	55	36

Source: Corcoran Irrigation District records

The Plan area is a “closed” basin with no natural outlet. No natural outflow from the historic Tulare Lake has occurred since the late 1870’s. This is a result of upstream diversions of the four major river tributaries on the east side of the San Joaquin Valley and the U.S Army Corps of Engineers flood control projects on these tributaries. However, during years of above normal runoff, floodwaters can inundate highly productive farmland within the Plan area. On average, some flooding occurs during one of every four to five years.

### Land Use

The majority of land in the Plan area is used for irrigated agriculture. Typical crops grown in the area include tomatoes, wheat, barley, safflower, alfalfa, and cotton. There are some nut orchards, but these are much less prevalent than row crops. There are a number of dairies in the northerly and easterly regions of the Plan area. Urban land use is minor in comparison to the overall Plan area. The largest urban area is the City of Corcoran and the nearby California State Prison Corcoran. Alpaugh is a small community located near the southeast corner of the Plan area.

### Water Resources and Supplies

Water resources and supplies for the Plan area include various surface water sources and groundwater. The descriptions of individual Plan participants found in Chapter 1 indicate specific supplies that are available to participants.

### **Surface Water**

Surface water supplies are generally derived from participant and landowner water rights on the Kings, Kaweah, and Tule Rivers, State Water Project (SWP) contracts, and US Bureau of Reclamation (USBR) contracts. Water is occasionally available from Deer Creek. Water users in the Plan area also acquire additional local surface water supplies when available. Floodwater,

which occurs infrequently, is impounded by the landowners in the southern and northeastern parts of the Plan area.

The Kings, Kaweah, Tule, and Kern Rivers originate in the southern Sierras east of the Plan area. These four major rivers are regulated by dams and reservoirs constructed by the US Army Corps of Engineers in the 1950's and 1960's. Smaller uncontrolled streams, including Deer Creek, Poso Creek, and the White River, provide erratic flows during flood periods. The Kings River is the primary source of surface water into the Plan area. Kings River water is delivered to the Plan area from the northeast through the Lakeland Canal, from the northwest through the South Fork of the Kings River, and through other privately owned canals. Tule River water is delivered to the Plan area from the east. The Kern River enters the Plan area from the south and the Kaweah River enters from the northeast.

In very wet years floodwater entering the Plan area can inundate Tulare Lake Bed lands. Flooding of cropland occurs an average of one in four to five years. During extreme flooding periods the four principal rivers, smaller uncontrolled streams, and arroyos on the west side of the San Joaquin Valley can all flow into the Plan area. Residual floodwaters in Tulare Lake Bed are used to the maximum extent possible for irrigation. Floodwater not used for irrigation is lost primarily to evaporation.

Local river water supplies vary greatly from year to year depending on hydrologic conditions. Flood releases can occur on the four major rivers at times of above average runoff. Since the Tulare Lake Bed is a closed basin, inundation of cropland leads to decreased demand for surface water supplies. The inundation and decreased demand typically occur at the same time there are flood releases from east side reservoirs. Subsequently an even greater proportion of the total reservoir releases is lost through flood releases. More reservoir capacity would permit the flood water to be stored and conserved

providing increased surface water deliveries in subsequent years, thereby resulting in less groundwater pumping. Plan participants actively pursue projects that will increase local surface water storage.

### **Groundwater**

The Plan area overlies the southern portion of the Tulare Lake Groundwater Basin (TLGB). The TLGB has been described in studies conducted by the Department of Water Resources and the United States Geological Survey. Generally, the TLGB consists of a shallow aquifer and a deep aquifer separated by a hydrogeologic formation known as the Corcoran Clay. The Corcoran Clay layer varies from approximately 50 to 200 feet in thickness, and occurs at depths of 400 to 600 feet. The soil profile above and below the Corcoran Clay layer consists of very dense clay as well. The soils that underlie the Plan area are primarily low water bearing, fine textured clay materials with interspersed lenses of silty sand. These relatively impermeable soils limit direct recharge of the shallow aquifer.

Shallow groundwater in the interior of the Plan area has high concentrations of salts and is not suitable for agricultural purposes. Shallow wells in the Plan area are located at the edges of the historic lake bed.

### **Geology**

Figure 13 is a location map of the Tulare Lake Bed and a corresponding geologic cross section through the Plan area. The cross section indicates the elevation and thickness of major geologic formations along the cross section line. This information was sourced from the U.S. Geological Survey Water Supply Paper (WSP) 1999-H, which includes detailed technical descriptions of the southern San Joaquin Valley's subsurface geology. A general description of the Plan area topography and geology is provided as follows.



The topography is a gradually sloping trough from the area's outer boundary toward the lowest region in the Tulare Lake Bed, which lies at approximately 175 feet above mean sea level (MSL). The generally flat terrain has an average slope of about one-foot per mile.

The soils in the historic lake bed are primarily impermeable clays. Soils along the rim of the historic lake bed are primarily fine grained, silty alluvium which were deposited along the shoreline. Older Continental alluvium deposits have noticeably finer texture than the younger Sierra Nevada deposits, which are highly permeable and consist of gravel, fine to very coarse sand, and silt. The alluvium deposits interfinger with clay layers near the Plan area boundary, and diminish approaching the interior of the lake bed. Areas near the center of the lake bed are almost entirely clay strata.

#### Groundwater Levels

The numeric depth to groundwater data presented herein dates to 1994. From 1994 to 2010, depth to water measurements were collected from a group of 28 wells within the Plan area. In 2011 the monitoring program was reorganized to conform with the California Statewide Groundwater Elevation Monitoring (CASGEM) program. A group of 16 wells was selected as being representative of conditions in the Plan area. Ground and well head elevations were surveyed and tied-in to a statewide elevation datum so groundwater elevations can be determined from the depth to water readings of the wells. Approximately 10 of the 16 CASGEM wells were in the original group of 28 wells. Table 3 indicates the average depth to water readings in the Plan area from 1994 to 2011. The data is separated into average readings for the shallow and deep wells that are monitored. Shallow wells are perforated above the Corcoran clay and deep wells are perforated below the Corcoran clay. Over the period of record, the average depth to water has ranged from about 70 to 175 feet for the upper aquifer and 110 to 310 feet for the lower aquifer.

**Table 3**  
Depth to Static Water in Plan Area

Year	Shallow Well Average in feet		Deep Well Average in feet	
	Spring	Fall	Spring	Fall
1994	130		250	
1995	87		145	
1996	85		135	
1997	142	90	169	172
1998	82	65	120	116
1999	67	69	110	146
2000	75		150	
2001	132	103	242	267
2002		91	266	209
2003	121	118	256	260
2004	126		254	
2005			257	
2006				
2007	146	141	271	259
2008	156	175	274	289
2009	147	176	268	313
2010	150	147	285	269
2011	127	118	213	213

Depth to water readings in the Plan area fluctuate up and down in response to hydrologic conditions and the availability of imported surface supplies. Figure 14 is a chart that illustrates these trends from water years 1993-94 to 2010-11.

Table 4 is a listing of the CASGEM wells and elevation data for each well site, and Figure 15 is a location map of the CASGEM wells. Beginning in the fall of 2011 these wells will be measured two times per year and the groundwater elevation data will be reported to the designated regional monitoring entity, Kings River Conservation District, and ultimately to the State.

**Table 4**  
**CASGEM Well Information**

Well No.	Latitude	Longitude	Groundwater Subbasin	Reference Elevation	Ground Elevation
Shallow Wells					
2	36.17	-119.67	Tulare Lake	197.0	195.3
4	36.20	-119.58	Tulare Lake	210.2	207.4
9	36.13	-119.55	Kaweah	203.2	199.1
11	36.09	-119.47	Kaweah	211.6	210.2
14	35.99	-119.49	Tule	188.8	187.4
Deep Wells					
1	36.17	-119.88	Tulare Lake	205.7	202.7
3	36.17	-119.69	Tulare Lake	195.6	193.1
5	36.19	-119.58	Tulare Lake	209.1	206.7
6	36.14	-119.89	Tulare Lake	199.9	196.9
7	36.06	-119.78	Tulare Lake	176.6	176.4
8	36.09	-119.66	Tulare Lake	179.8	177.2
10	36.07	-119.61	Tulare Lake	182.0	180.2
12	36.09	-119.46	Kaweah	212.3	211.3
13	36.04	-119.59	Tulare Lake	182.2	181.3
15	35.96	-119.48	Tule	185.3	184.3
16	35.91	-119.45	Tule	199.0	197.5

#### Water Quality

Surface water supplies to the Plan area are of excellent quality due to low total dissolved solids (TDS). Kings River supplies have TDS of approximately 100 parts per million (ppm) and State Project water TDS is about 250 ppm. Well water in the Plan area generally has higher TDS than Kings River surface water and is comparable to State Project water. Kings River and State Project water typically ranges from 100 to 300 ppm. Most of the groundwater wells range in TDS from 150 to 500 (ppm).

The City of Corcoran, which is the only Plan participant that relies exclusively on well water for its supplies, monitors and reports its source water quality in accordance with Title 22 requirements for potable water systems.

### III. GROUNDWATER MANAGEMENT PLAN COMPONENTS

This chapter summarizes the components of the Coordinated Groundwater Management Plan (Plan). Components that are recommended for SB1938 compliance but are not applicable to this Plan, are also identified.

#### Saline Intrusion

Saline intrusion of the groundwater aquifer is not a concern in the Plan area.

#### Management of Wellhead Protection Areas

Wellhead protection areas, if such areas exist, are managed in accordance with County requirements.

#### Regulation of Migration of Contaminated Groundwater

There are no known issues related to the migration of contaminated groundwater within the Plan area.

#### Well Abandonment and Destruction

Well abandonment and destruction within the Plan area are conducted in accordance with County requirements.

#### Existing Groundwater Management and Conjunctive Use Activities

As stated elsewhere in the Plan, direct recharge is limited due to the geologic conditions throughout most of the Plan area. However, most participants use surface water supplies whenever possible in-lieu of groundwater pumping. Conjunctive management of local water resources, including surface water through indirect or in-lieu recharge, has been practiced in the Plan area for nearly a century. Groundwater levels that have declined during dry periods typically recover when adequate surface water supplies are available to the Plan area.

### **Direct Recharge**

The confined and unconfined aquifers underlying the Plan area are primarily recharged from seepage from rivers and irrigation facilities on the east side of the San Joaquin Valley. Corcoran Irrigation District (CID) owns ponding basins in the northeastern corner of the Plan area which are used to provide direct recharge primarily to the unconfined aquifer above the Corcoran clay with limited benefit to the lower aquifer. CID uses the ponds for direct recharge when excess surface water is available, typically during years with above average runoff.

### **Surface Storage**

Landowners can store water in ponds at the south end of the Tulare Lake Bed. These ponds are located on land that is marginal for farming and not suitable for direct recharge. When floodwater enters the Lake Bed from the various tributary rivers and creeks, and it threatens to inundate prime farmland, the water is diverted into these storage ponds using a system of ditches and pumps. As irrigation demands increase, the water stored in the ponds is used for irrigation in-lieu of groundwater pumping.

### **State Water Project**

Irrigating with imported surface water supplies minimizes groundwater pumping and recharges the groundwater aquifers through indirect or in-lieu recharge. Erratic local river supplies and the desire to reduce groundwater pumping motivated Tulare Lake Basin Water Storage District (TLB) to enter a contract for State Water Project (SWP) water in the early 1960's. Two diversion points and canals were constructed from the California Aqueduct to the west side of the Plan area. From 1968 through 2011, more than 4.5-million acre-feet of irrigation water was imported into the Plan area from the California Aqueduct. Although the cost of imported surface water is frequently higher than the cost of pumping groundwater, growers in the Plan

area continue to purchase and deliver this water to reduce their reliance on groundwater.

### **Empire Weir No. 2 Pool**

TLB is also active in water exchange programs using its delivery facilities from the Kings River and California Aqueduct. The District does not have major surface storage or groundwater banking capabilities. However, Kings River water is received through the Empire Weir No. 2 pool, which has about 400 acre-feet of temporary storage capacity.

### **Kings County Exchange**

The County of Kings is a SWP Contractor but it has no direct connection from the California Aqueduct to deliver its SWP water. The TLB entered into an exchange agreement with the County of Kings in 1967. Through that agreement TLB accessed 4,000 acre-feet per year of the County's contract supply from the Aqueduct in exchange for an equivalent amount of Kings River water.

In 1979, the County determined it could no longer afford the cost of the SWP water and therefore entered into an agreement with various water agencies in the area to sell them the exchanged Kings River water for the cost of maintaining the County's SWP contract. The water agencies were willing to pay for this supply to offset groundwater pumping and not lose this imported water supply. The original agreement has since been amended several times and the current exchange amount is 3,100 acre-feet.

### **Urban and Prison Water Use Mitigation Program**

The City of Corcoran and the California State Prison Corcoran rely solely on groundwater for their water supplies. To offset impacts on groundwater, the City and prison contribute annually to a mitigation fund. Under the Plan the mitigation fund can be used to purchase and divert affordable surface water

to CID's recharge ponds, which are located near the City's well field. Alternatively, growers in CID can receive surface water purchased through the mitigation fund in lieu of operating their irrigation wells. Approximately 12,250 acre-feet of surface water has been purchased under this program since it began.

### **Drought Year Surface Water Purchases**

TLB also purchases surface water supplies for conjunctive use. During dry years, District water users purchased Yuba County Water Agency Water, California Drought Water Bank Water, and SWP Supplemental Short Term Water Purchase water for delivery from the California Aqueduct.

These programs demonstrate Plan participants' cooperation and coordination with each other to optimize and manage their groundwater supplies. In years when surface water from local rivers or other imported surface water is available, groundwater use is reduced and indirect recharge occurs. In dry years groundwater supplies are used. Figure 14 is a chart that graphically illustrates the effectiveness of these programs. The chart shows how the proportion of surface water and groundwater use varies depending on hydrologic conditions, and the responsiveness of groundwater levels when surface supplies are abundant and groundwater pumping is reduced.

### **Monitoring of Groundwater Levels and Storage**

A key component to the Plan is monitoring of groundwater levels within the Plan area. Collection and dissemination of this data was recently reorganized to conform with the California Statewide Groundwater Elevation Monitoring (CASGEM) program. Under this program, a group of 16 representative wells was selected. Figure 15 is a location map of the wells. The well location symbols and map legend indicate if the wells are perforated above or below the Corcoran clay layer.

To conform with the CASGEM program, the selected well sites were surveyed and the elevations were tied-in to a statewide elevation datum. Included in the survey were the elevations of the natural ground adjacent to the wells, bench marks on the well head concrete pads, and measurement reference points on the sounding tubes.

The well owners are responsible for measuring their respective CASGEM wells during the spring and fall each year. Depth to water measurements are taken after the well pumps have been turned off for a period of time to allow the water level to stabilize. These readings are submitted to the Plan administrator, TLB, which processes all the CASGEM data and submits it in an electronic format to the designated reporting agency, Kings River Conservation District (KRCD).

#### Monitoring of Groundwater Quality

Owners of the CASGEM wells periodically test their well water for electrical conductivity (EC) which relates to the total dissolved solids in the water. EC measurements will be logged by TLB acting as Plan administrator.

#### Monitoring of Surface Flow and Surface Water Quality Relative to Groundwater and Groundwater Pumping

Surface soils in the Plan area are primarily semi-permeable to impermeable, and the depth to usable groundwater, if any, is far below the ground surface or any canals or stream beds within the Plan area. Surface flow does not come in contact with the usable groundwater and therefore does not affect groundwater quality or quantity. The naturally high concentration of salts in the perched groundwater precludes its use for irrigation or municipal uses.

#### Monitoring and Management of Inelastic Land Surface Subsidence

Plan participants are currently reviewing options for monitoring land subsidence. One option would be to establish a set of reference points



throughout the Plan area and perform periodic elevation surveys of the points. The reference points could be located on canal structures or other permanent concrete structures that are at least several years old and have undergone most of the settlement that is typical following construction. Since these types of structures are founded near the ground surface, changes to their elevation would be approximately the same as the surrounding ground. Monitoring of the reference points could also include an assessment of how changes in ground elevations might affect surface flows in the Plan area.

#### Well Construction Policies

Wells constructed within the Plan area are done in accordance with County and State Department of Water Resources requirements.

#### Construction and Operations of In-Lieu Recharge, Storage, Conservation, Water Recycling, and Extraction Projects

As previously discussed, many of the Plan participants have constructed and operated projects related to storage, conservation, water recycling and extraction.

#### **Angiola Water District Projects**

Angiola Water District (AWD) continues to research a number of projects involving their system which would benefit groundwater in the Plan area. These projects are presented conceptually as follows and will require additional investigations to determine their feasibility.

#### *Surface Storage Basins*

AWD has a system of production wells and ditches located just west of Highway 43. The land surrounding the wells is marginal ground that is not continuously farmed and it encompasses most of three sections (3 square miles). Two of the sections are partially owned by AWD and the third is held by a private owner. The well system ditches are generally located along the

perimeter of the parcels. It is proposed that earthen levees be constructed on the land for storage basins. Floodwater from Deer Creek could be diverted into the proposed basins. Instead of pumping groundwater, water stored in the basins could later be released into the existing well system ditches for AWD's irrigation demands.

#### *Injection Wells*

There are a number of locations within the above described AWD well field where existing wells have been retired and new wells were constructed within a few hundred feet or less. The wells were retired because the casings deteriorated and were no longer suitable for pumping. These casings might still be utilized to inject surface water into the aquifer. This may be done by connecting the existing well system ditches to the injection wells and using water stored in the proposed basins for direct recharge. It might also be possible to divert surface water to the injection wells from other parts of the Plan area using AWD's main delivery ditch.

#### *Groundwater Conservation Easement*

Another concept or related concepts being considered by AWD is a groundwater conservation easement or land fallowing program which result in reducing groundwater pumping.

#### **Other Projects**

Another concept which has been discussed by the Plan participants would be a program to flood fallowed land for temporary storage. As with AWD's proposed storage basins, this program would require construction of earthen berms or levees to contain the floodwater, and coordination among the Plan participants to divert floodwater to the designated areas.

### Relations with Local, State, and Federal Regulatory Agencies

Under the Plan, participants attend regular quarterly meetings. These meetings provide a forum for the Plan administrator, TLB, to report on groundwater and surface water conditions, review conjunctive management activities being implemented by other Plan participants, and review regulations that could affect groundwater use and management. The meetings also provide an opportunity for Plan participants to meet and coordinate with other local water management agencies such as Kaweah Delta Water Conservation District.

The participants submit groundwater elevation data to TLB and the District disseminates the data to Kings River Conservation District (KRCD) and the State Department of Water Resources. KRCD is the designated reporting agency for the Plan under the State's SBx7-6 California Statewide Groundwater Elevation Monitoring (CASGEM) program. Data for this program is submitted semi-annually.

The formation of the Plan participants under the Joint Powers Agreement and their ongoing participation in monitoring groundwater and attending the quarterly meetings demonstrates the effectiveness of the coordinated plan approach being used for groundwater management in the Tulare Lake Bed.

### Land Use Planning

Land use planning in the Plan area is done in accordance with County and City General Plans and zoning ordinances.

## IV. MANAGEMENT OBJECTIVES

The primary objectives of the Coordinated Groundwater Management Plan are listed as follows.

- Monitor groundwater levels and disseminate data to plan participants.
- Maintain relationships with local and State agencies.
- Define opportunities for sustaining local groundwater supplies, including enhancing conjunctive use.
- Enhance existing conjunctive use through operational programs to import additional surface water and capital projects to increase surface water use and groundwater storage.

## V. MONITORING

Following are the monitoring protocols for the Coordinated Groundwater Management Plan:

### Groundwater Levels

- California Statewide Groundwater Elevation Monitoring (CASGEM) program.
- CASGEM Well locations indicated on Figure 15.
- Designated well owners measure depth to groundwater in spring and fall.
- Measurements taken when well is not being pumped and level has stabilized.
- Measurements are transmitted to Tulare Lake Basin Water Storage District (TLB).
- TLB processes data and transmits summary of depth to water and water elevations to Kings River Conservation District (KRCD).
- KRCD forwards groundwater level data to California Department of Water Resources.

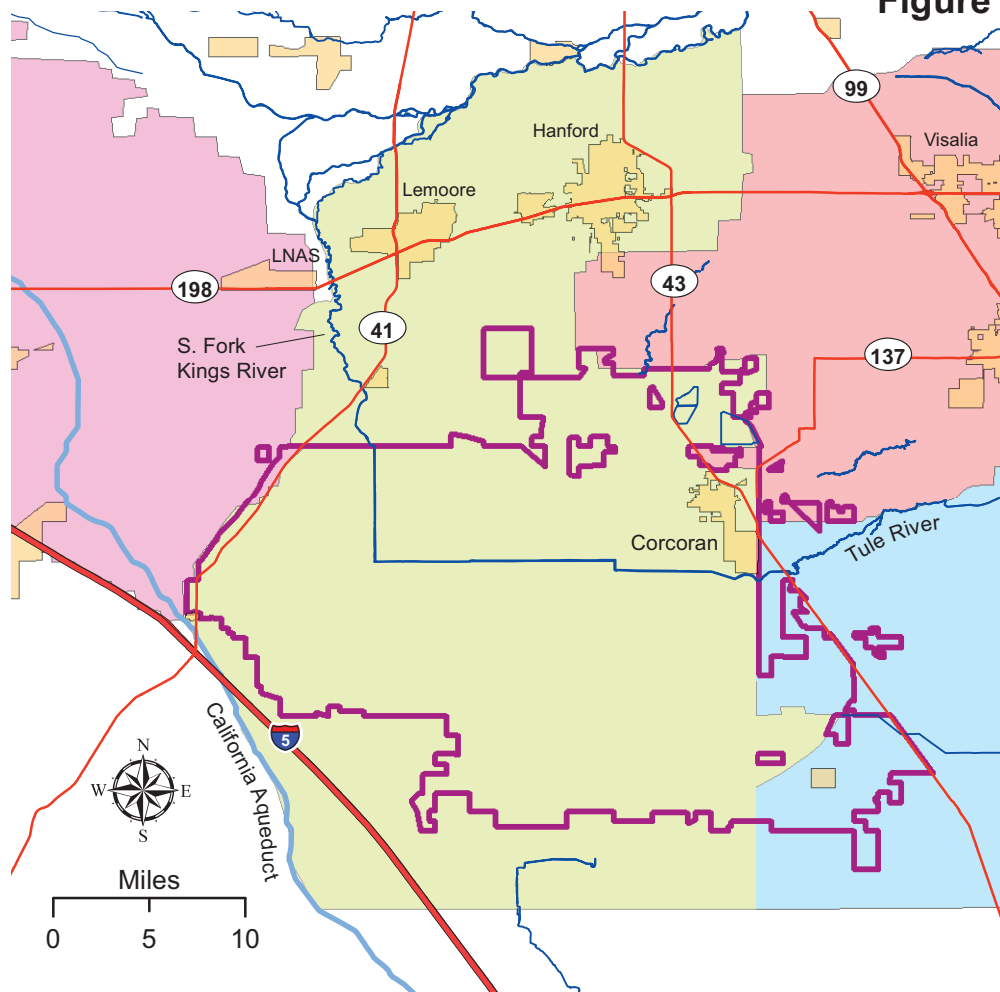
### Groundwater Quality

- CASGEM well owners periodically test well water for electrical conductivity (EC).
- Samples taken after well has been pumped for a short time.

### Inelastic Land Subsidence

- Monitoring program currently under review by Plan participants.

**Figure 1**

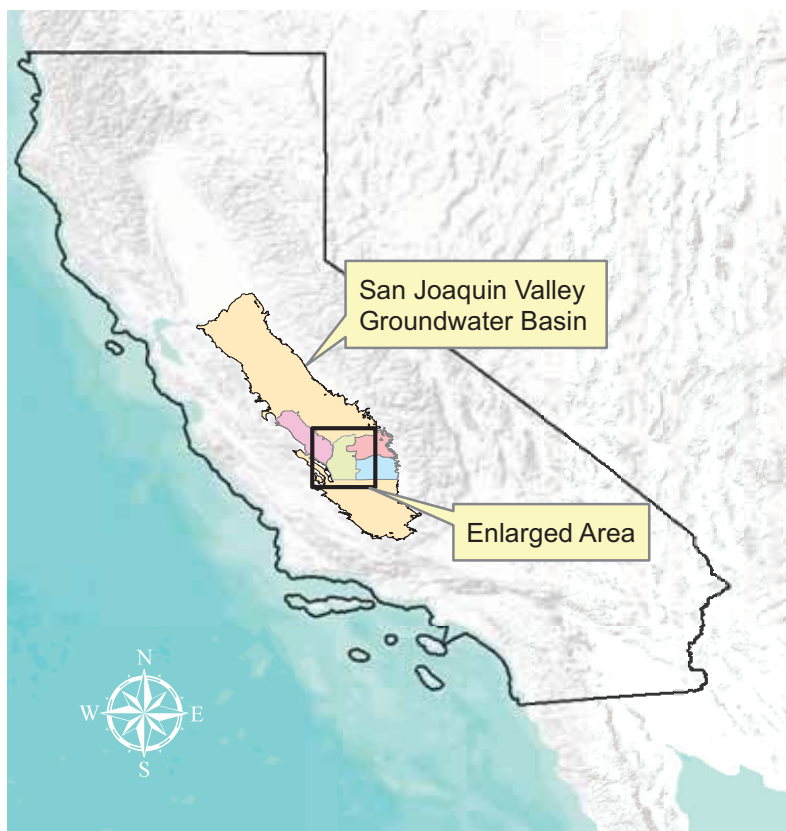


**ENLARGED AREA**

**Legend**

- Interstate Highway
- State Highway
- Rivers
- Canals
- Plan Area Boundary**
- Westside Groundwater Sub-basin
- Tule Groundwater Sub-basin
- Tulare Lake Groundwater Sub-basin
- Kaweah Groundwater Sub-basin

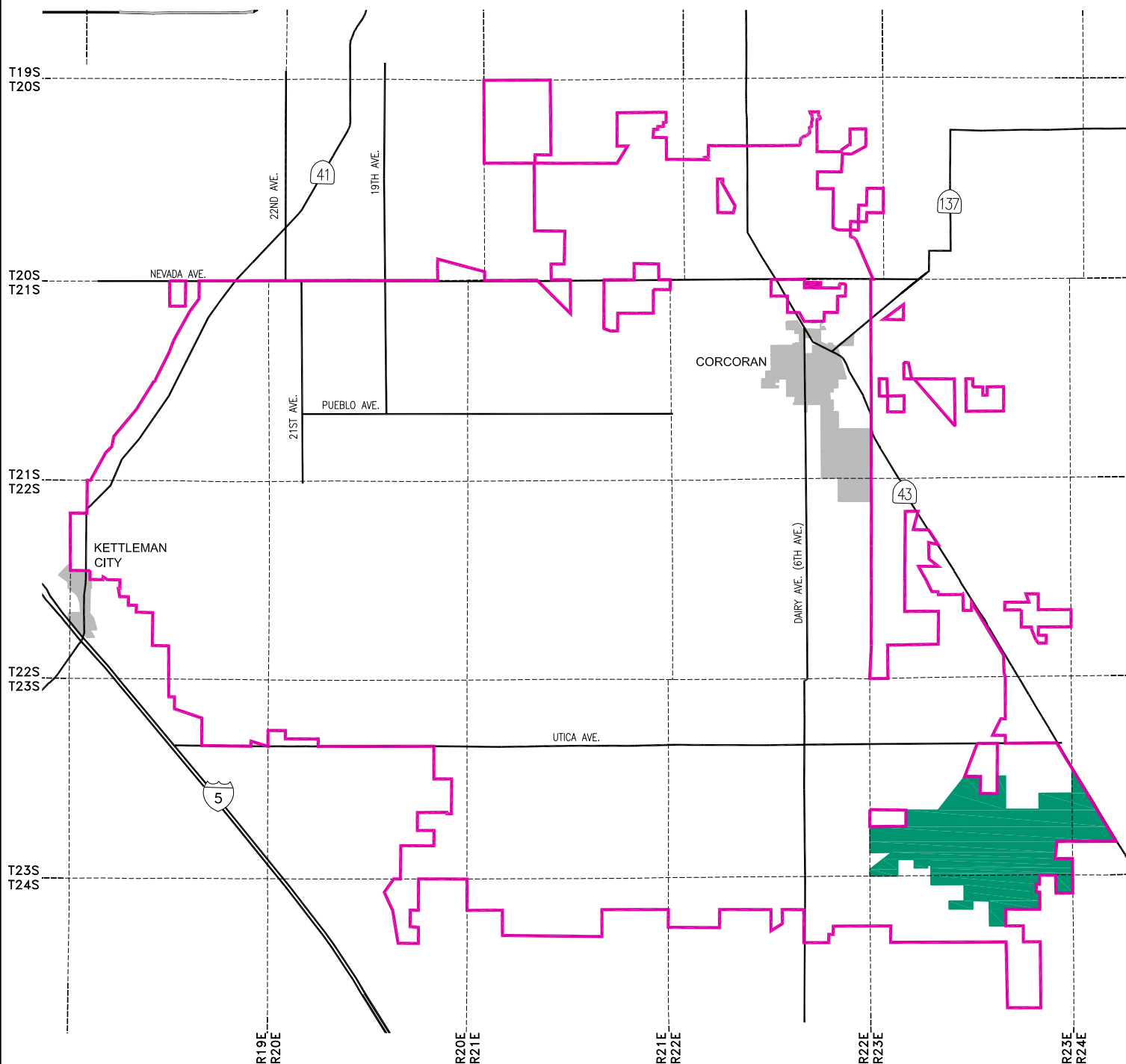
**Tulare Lake Bed Coordinated  
Groundwater Management Plan  
Plan Area Location Map**



**STATE OF CALIFORNIA**

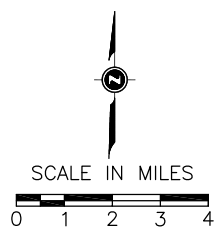
Summers Engineering, Inc.  
Consulting Engineers  
Hanford California

FIGURE 2



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- ALPAUGH IRRIGATION DISTRICT

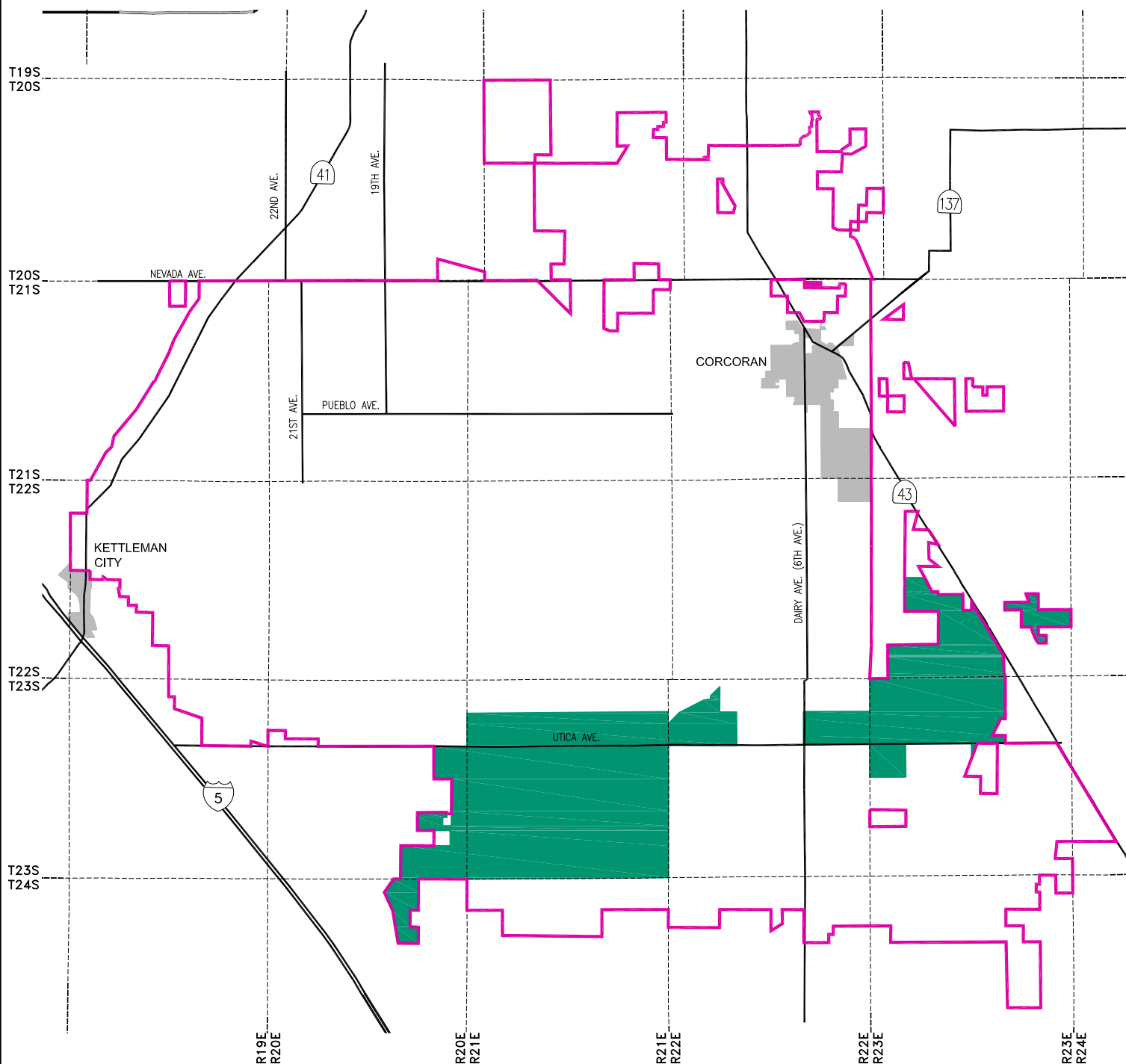


TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN  
**ALPAUGH IRRIGATION DISTRICT  
LOCATION MAP**

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

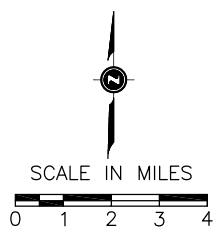
October 2011

FIGURE 3



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- ANGIOLA WATER DISTRICT



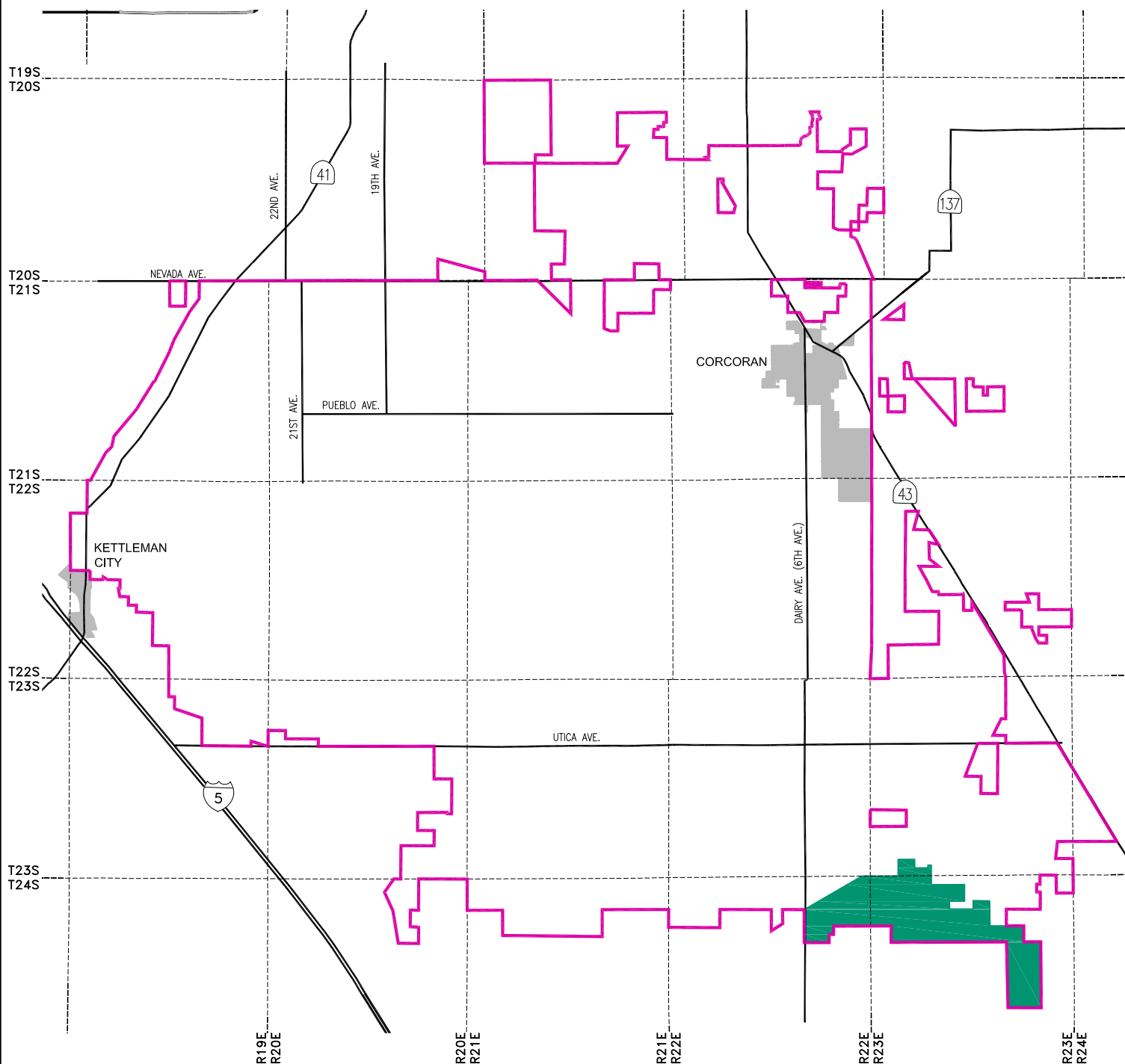
TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

**ANGIOLA WATER DISTRICT  
LOCATION MAP**

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

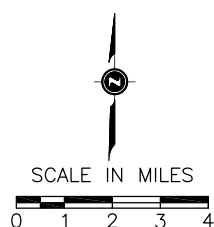
October 2011





**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- ATWELL ISLAND WATER DISTRICT



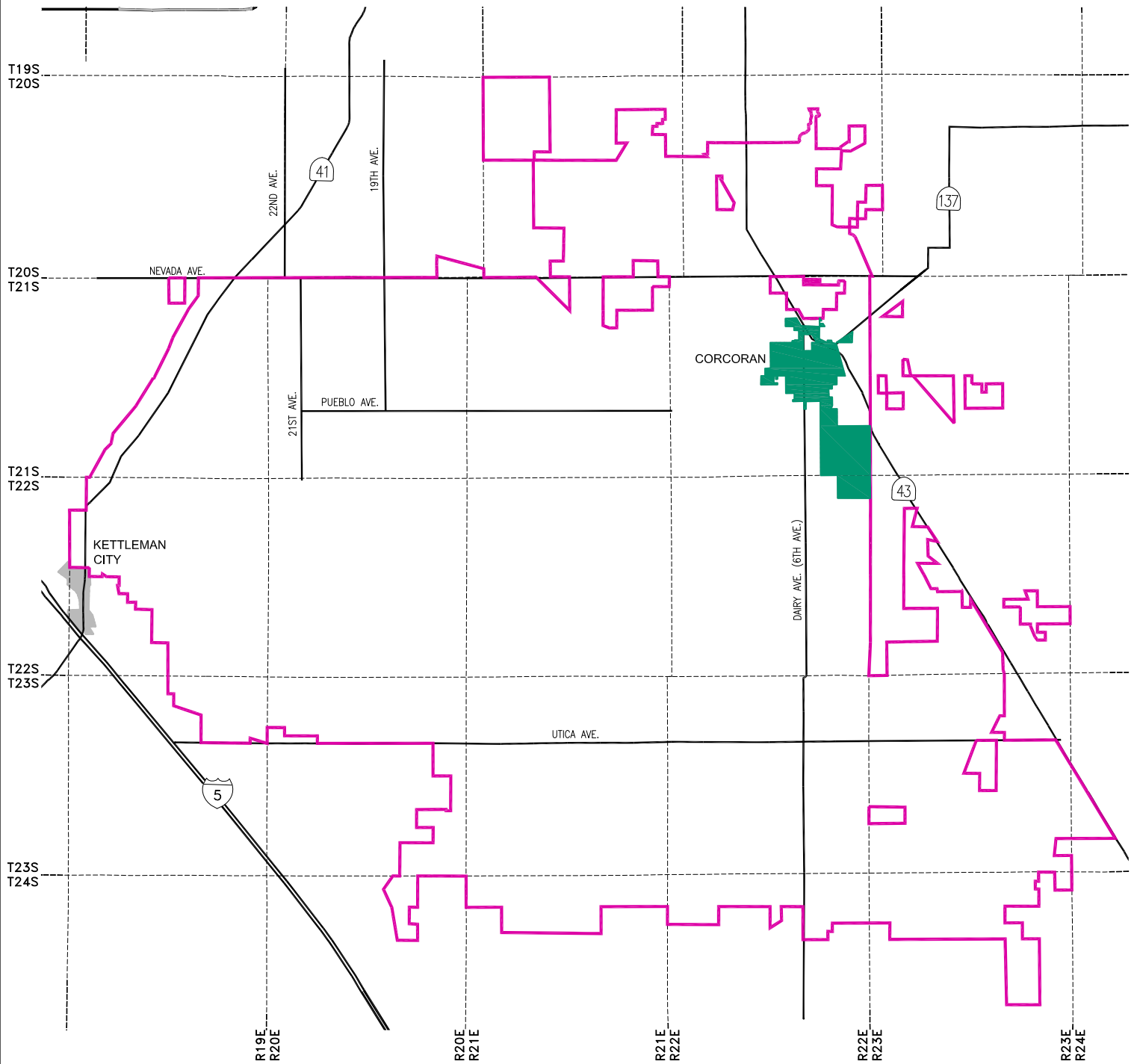
TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

**ATWELL ISLAND IRRIGATION  
DISTRICT LOCATION MAP**

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

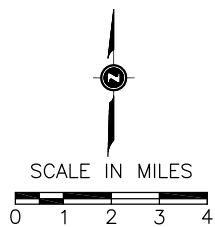
October 2011

FIGURE 5



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- CITY OF CORCORAN



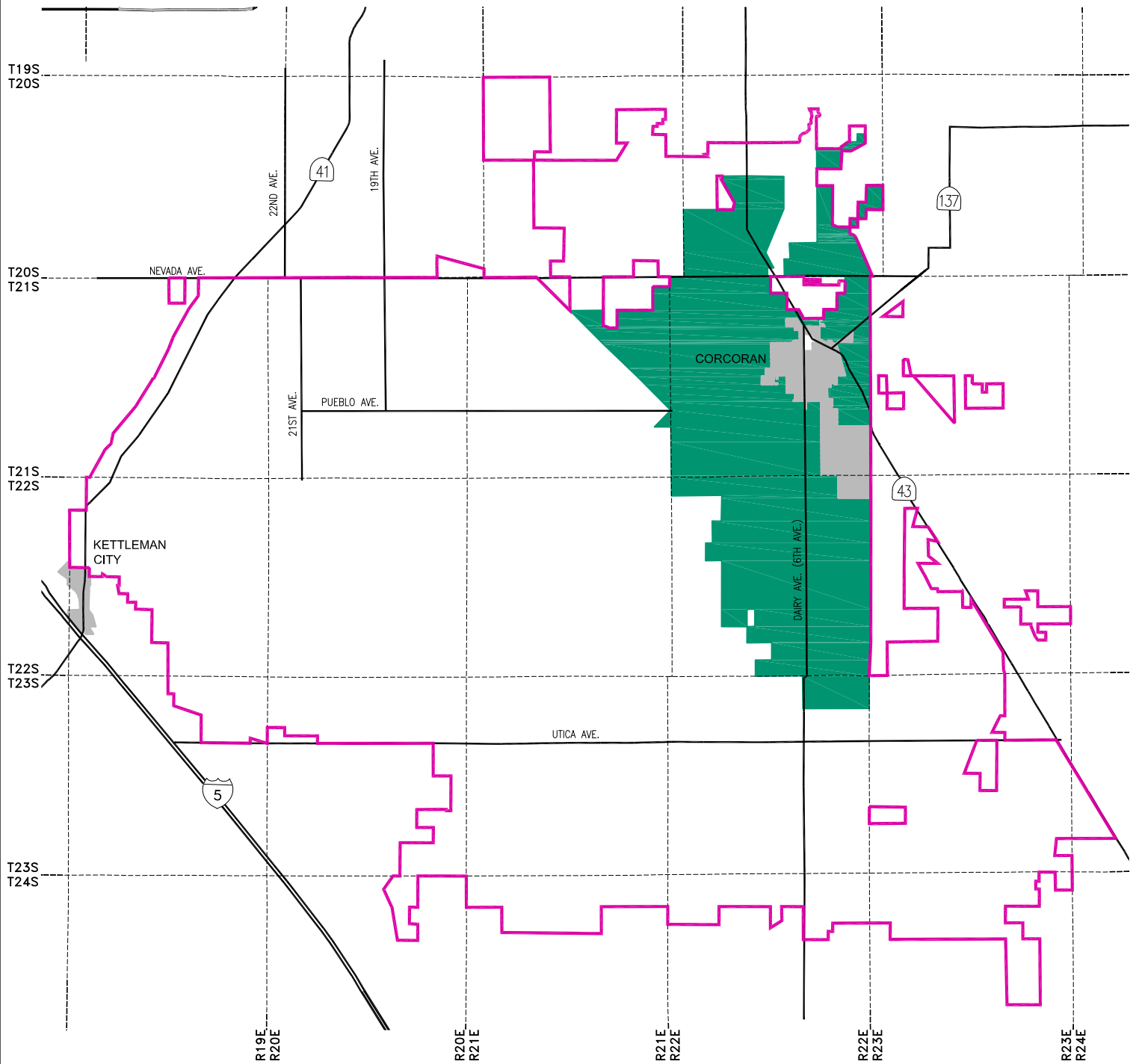
TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

# CITY OF CORCORAN LOCATION MAP

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

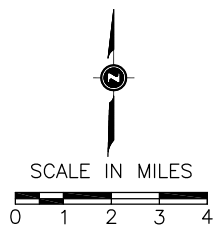
October 2011

FIGURE 6



**LEGEND**

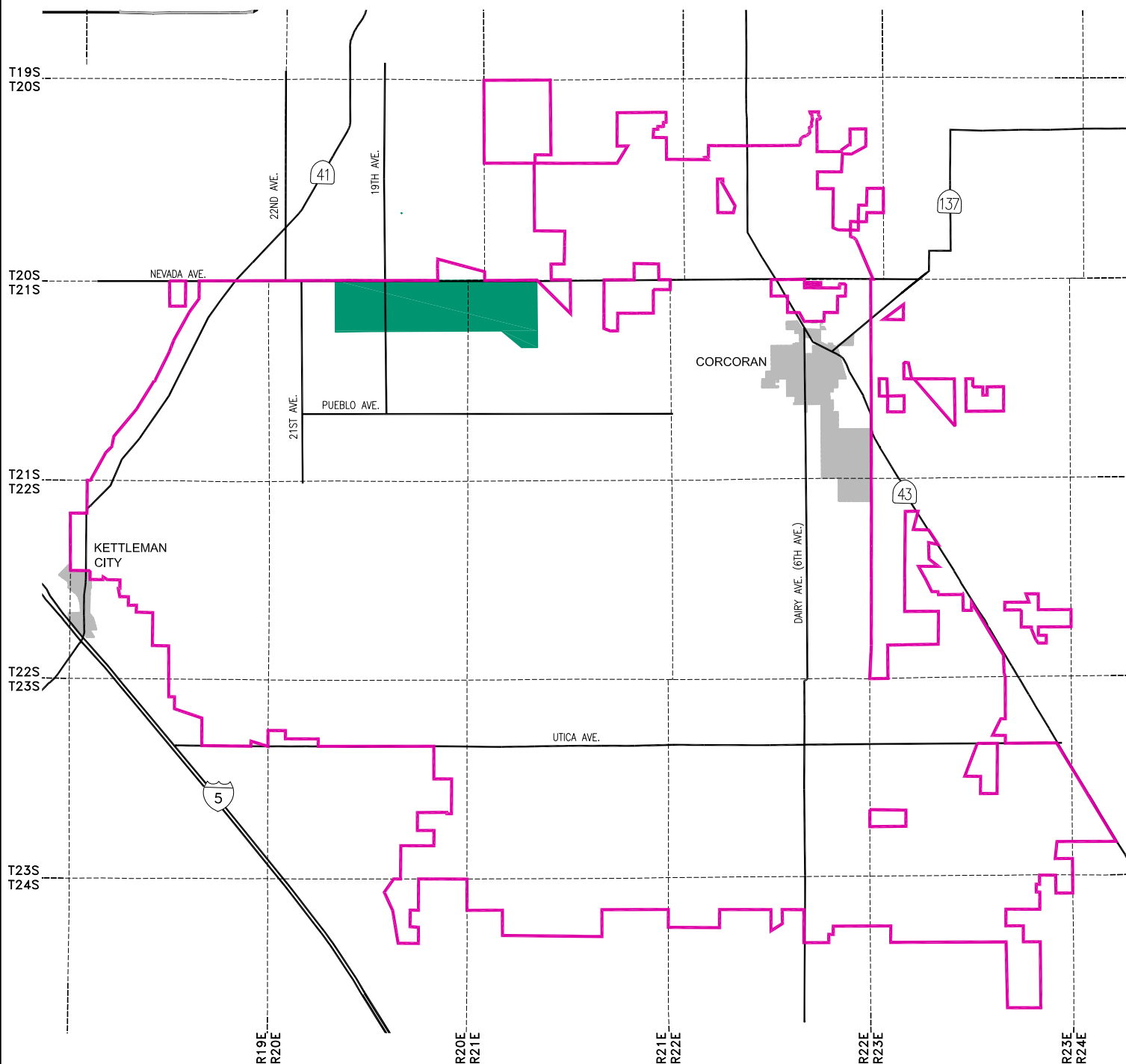
- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- CORCORAN IRRIGATION DISTRICT



TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN  
**CORCORAN IRRIGATION  
DISTRICT LOCATION MAP**

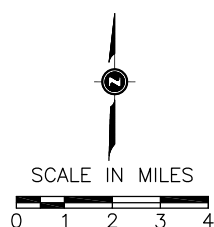
SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

October 2011



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- LOVELACE RECLAMATION DISTRICT #739



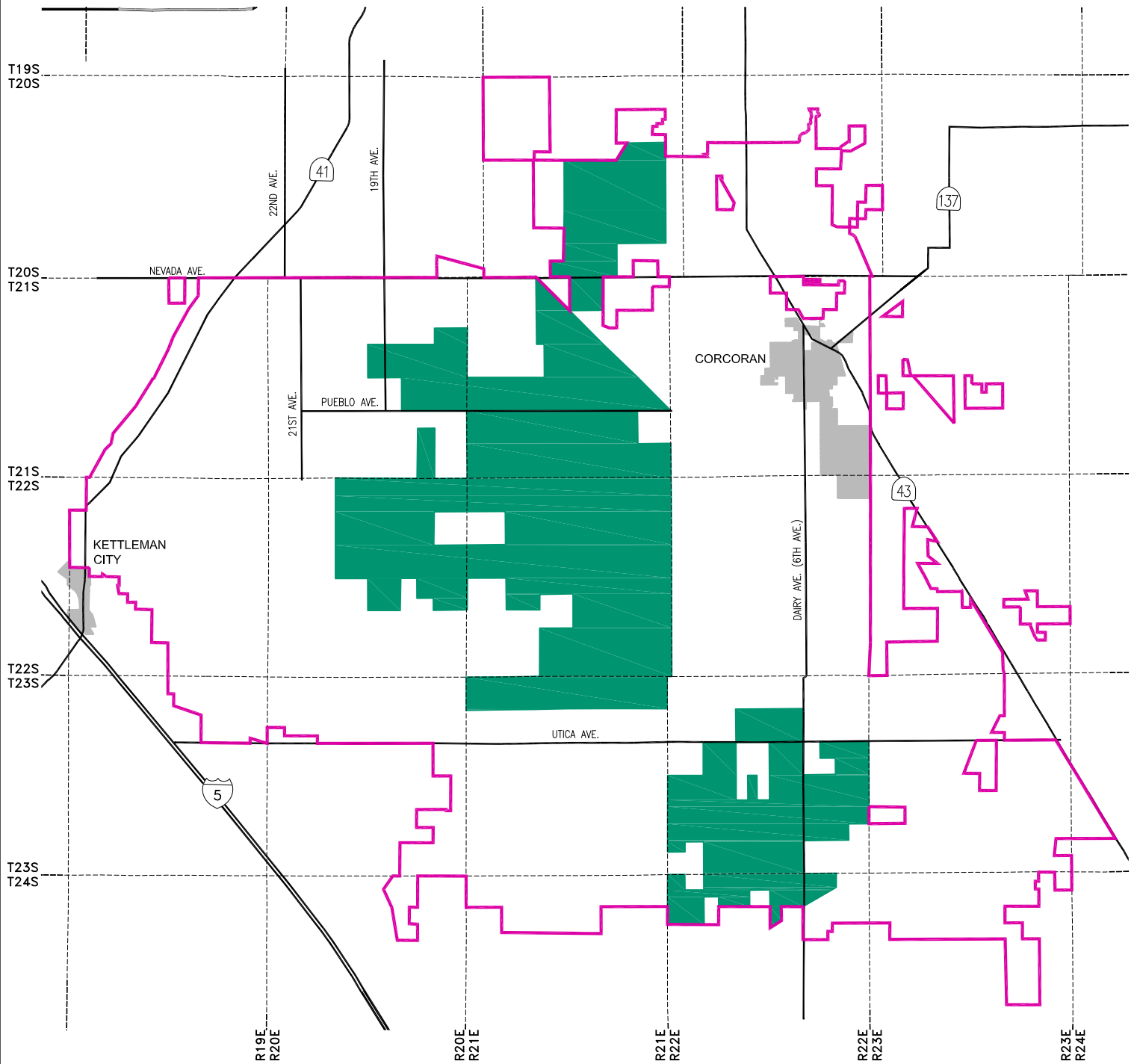
TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

# LOVELACE RECLAMATION DISTRICT #739 LOCATION MAP

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

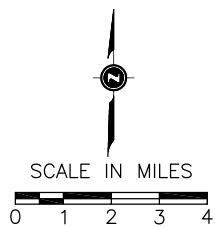
October 2011

FIGURE 8



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- MELGA WATER DISTRICT

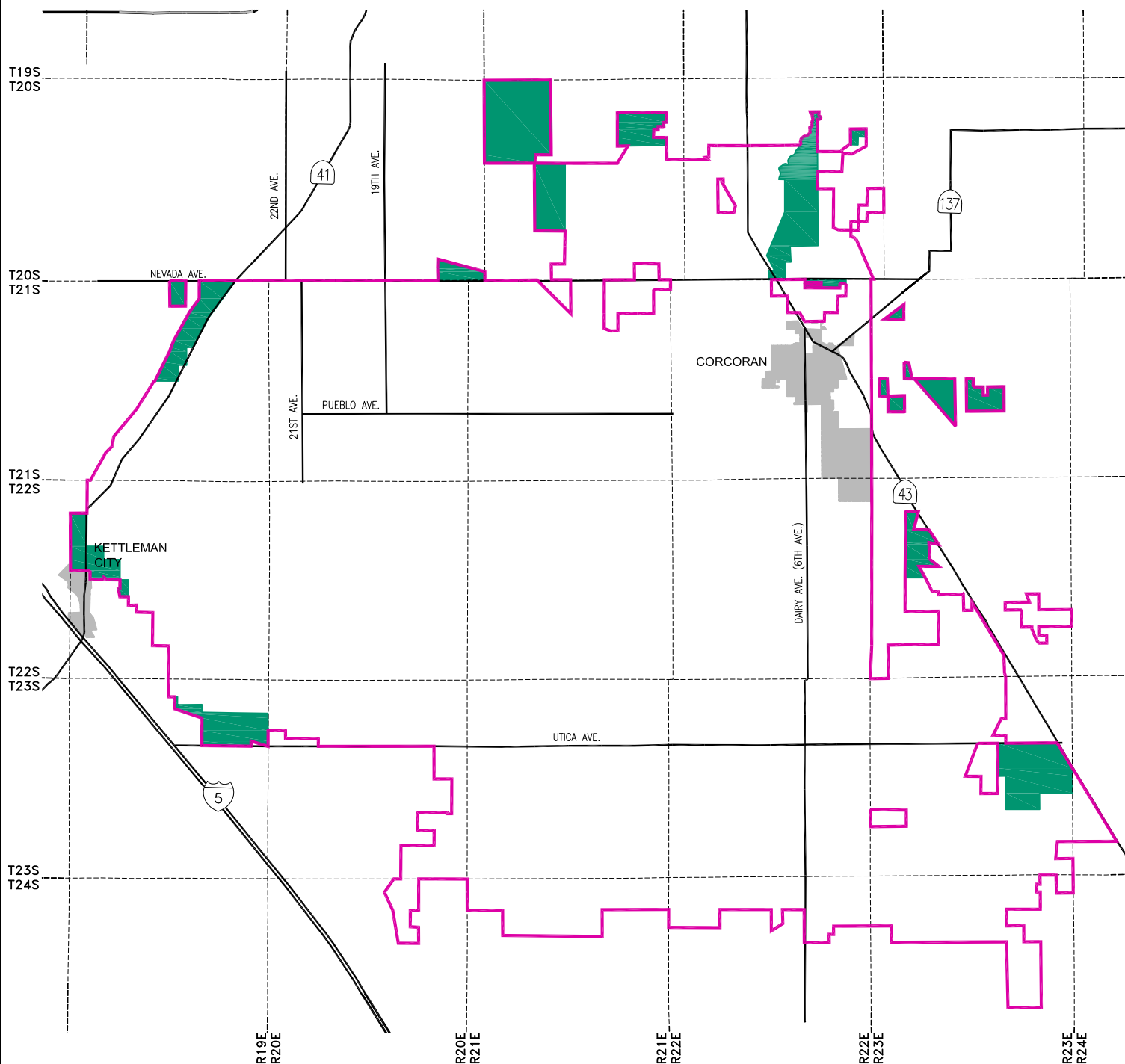


TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

# MELGA WATER DISTRICT LOCATION MAP

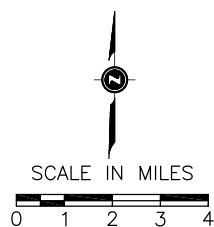
SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

October 2011



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- MOU PRIVATE LANDS

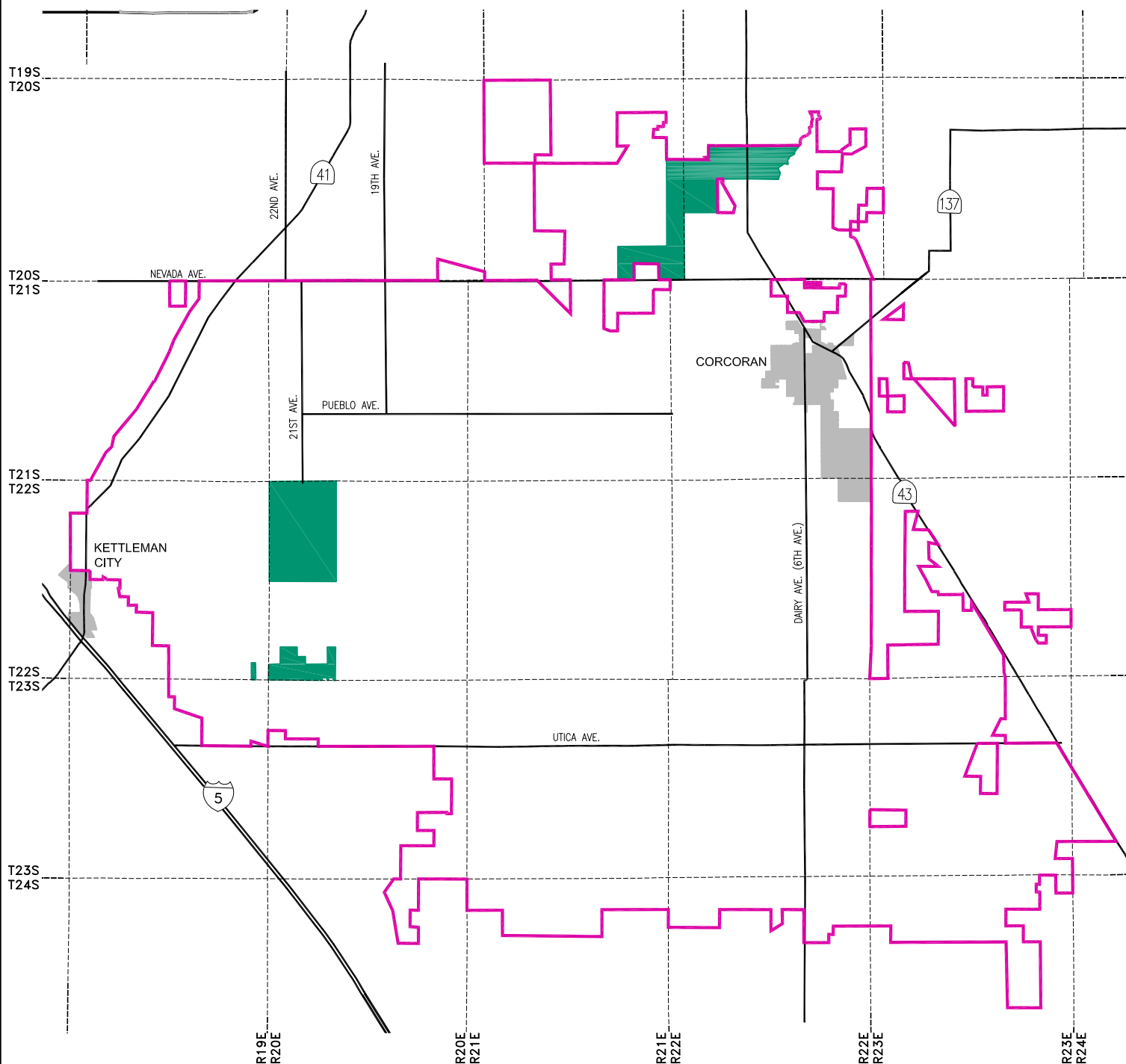


TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

## MOU PRIVATE LANDS LOCATION MAP

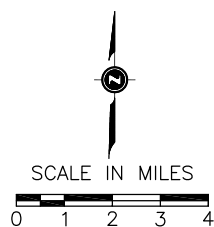
SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

October 2011



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- SALYER WATER DISTRICT

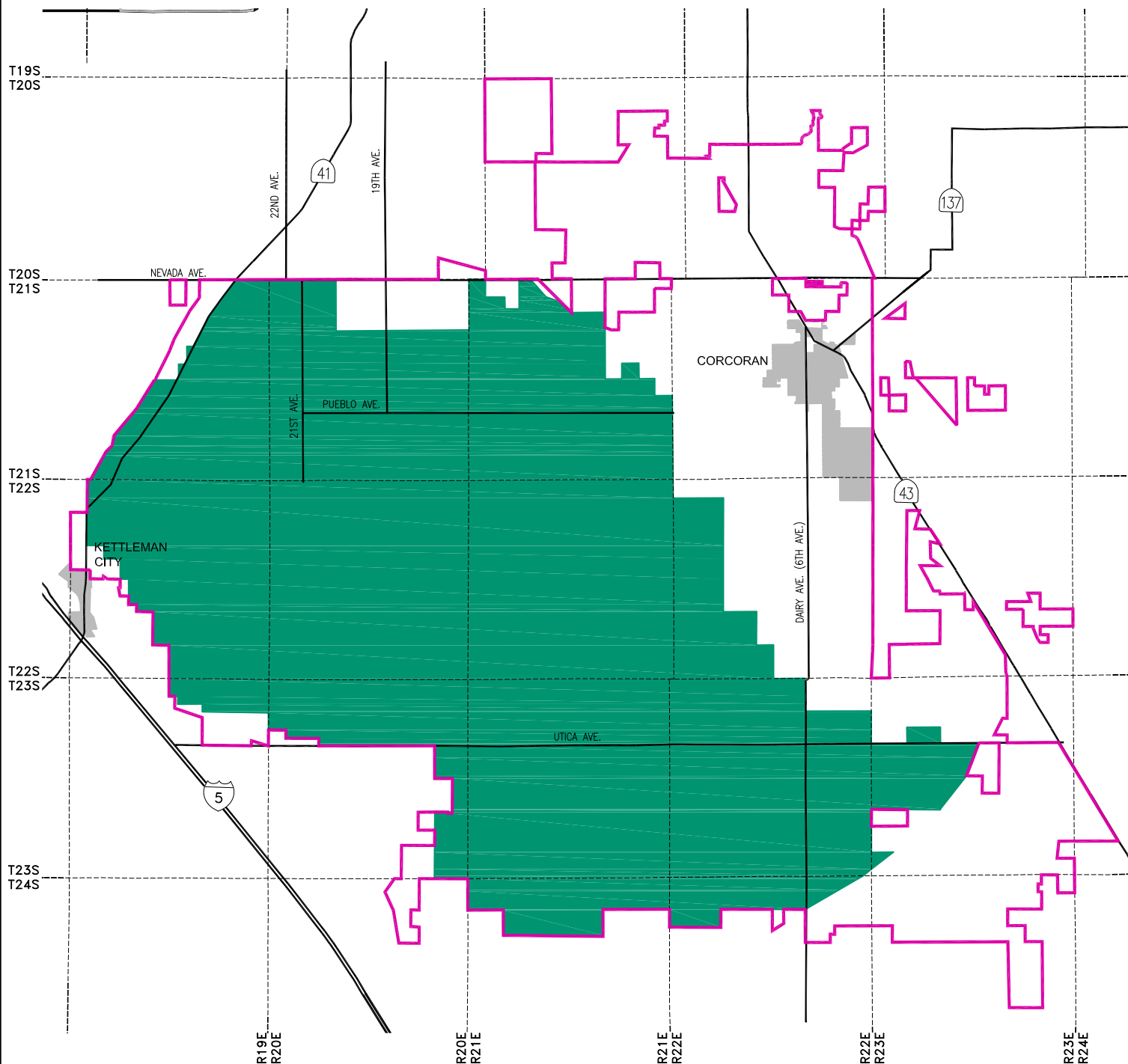


TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

**SALYER WATER DISTRICT  
LOCATION MAP**

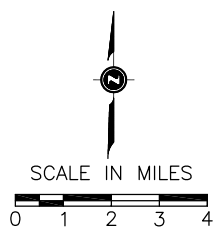
SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

October 2011



**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- TULARE LAKE BASIN WATER STORAGE DISTRICT



TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

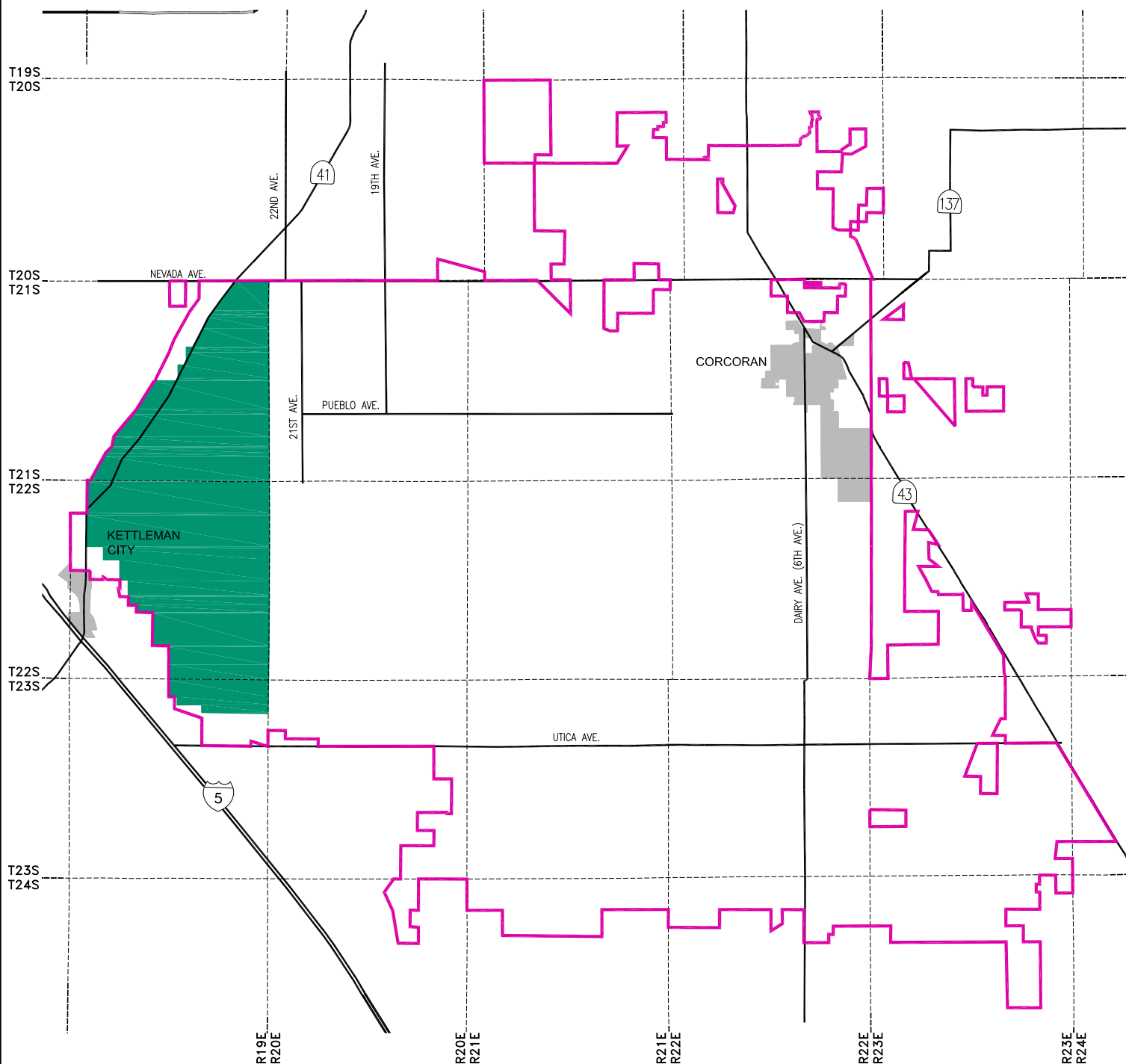
**TULARE LAKE BASIN  
WATER STORAGE DISTRICT  
LOCATION MAP**

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

October 2011



FIGURE 12



# **LEGEND**

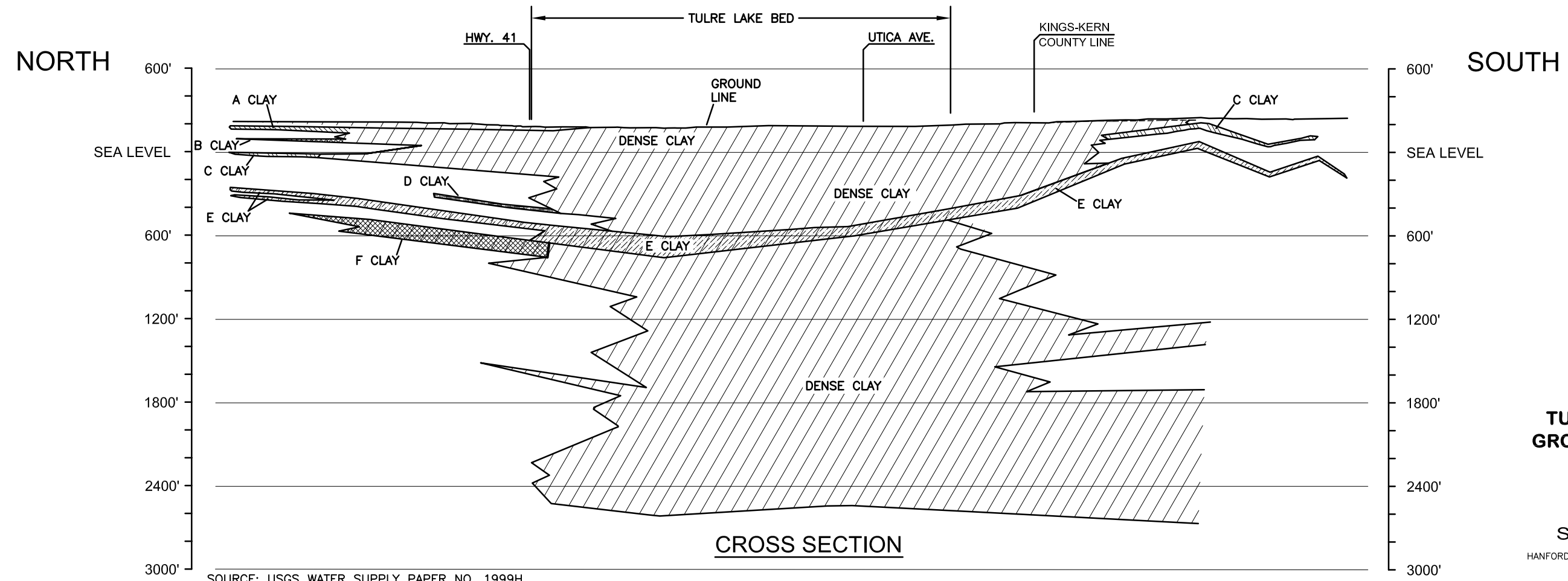
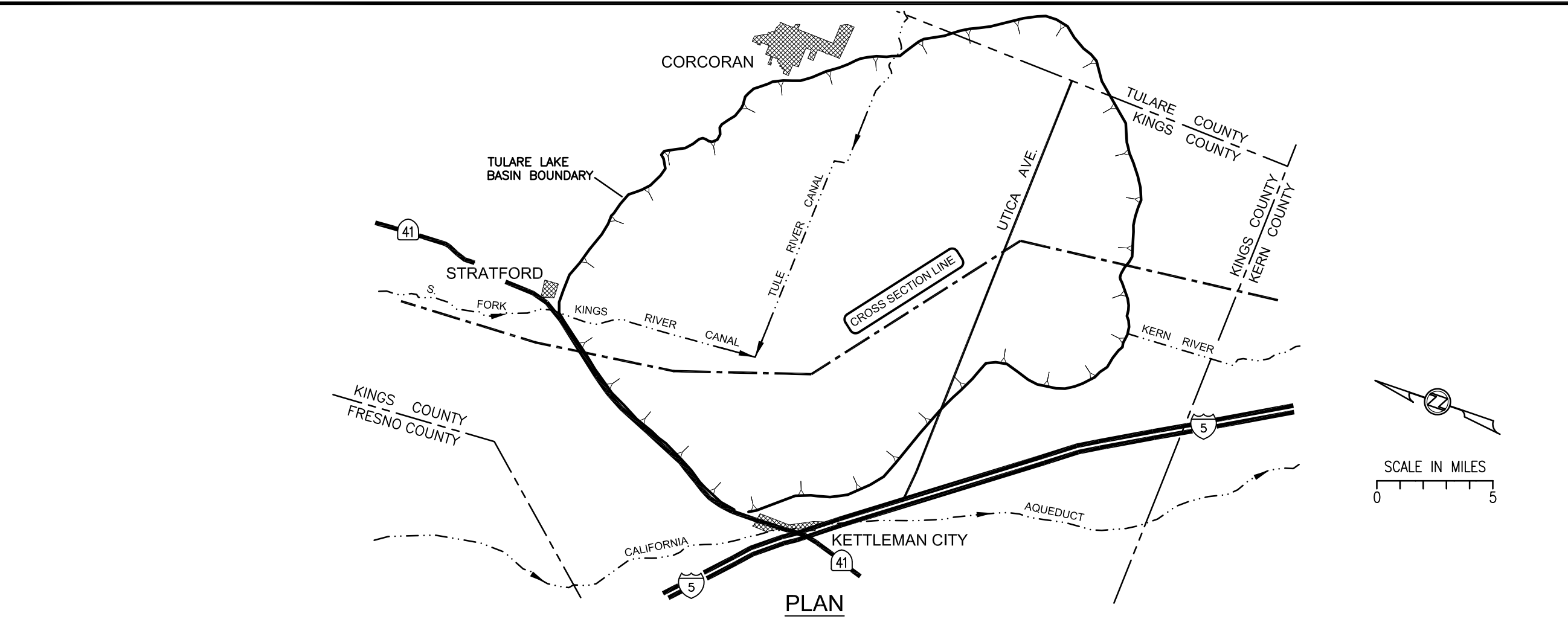
- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- TULARE LAKE RECLAMATION DISTRICT #761

## TULARE LAKE BED COORDINATED GROUNDWATER MANAGEMENT PLAN **TULARE LAKE RECLAMATION DISTRICT #761 LOCATION MAP**

SUMMERS ENGINEERING, INC.  
Consulting Engineers  
HANFORD CALIFORNIA

October 2011

FIGURE 13



SOURCE: USGS WATER SUPPLY PAPER NO. 1999H

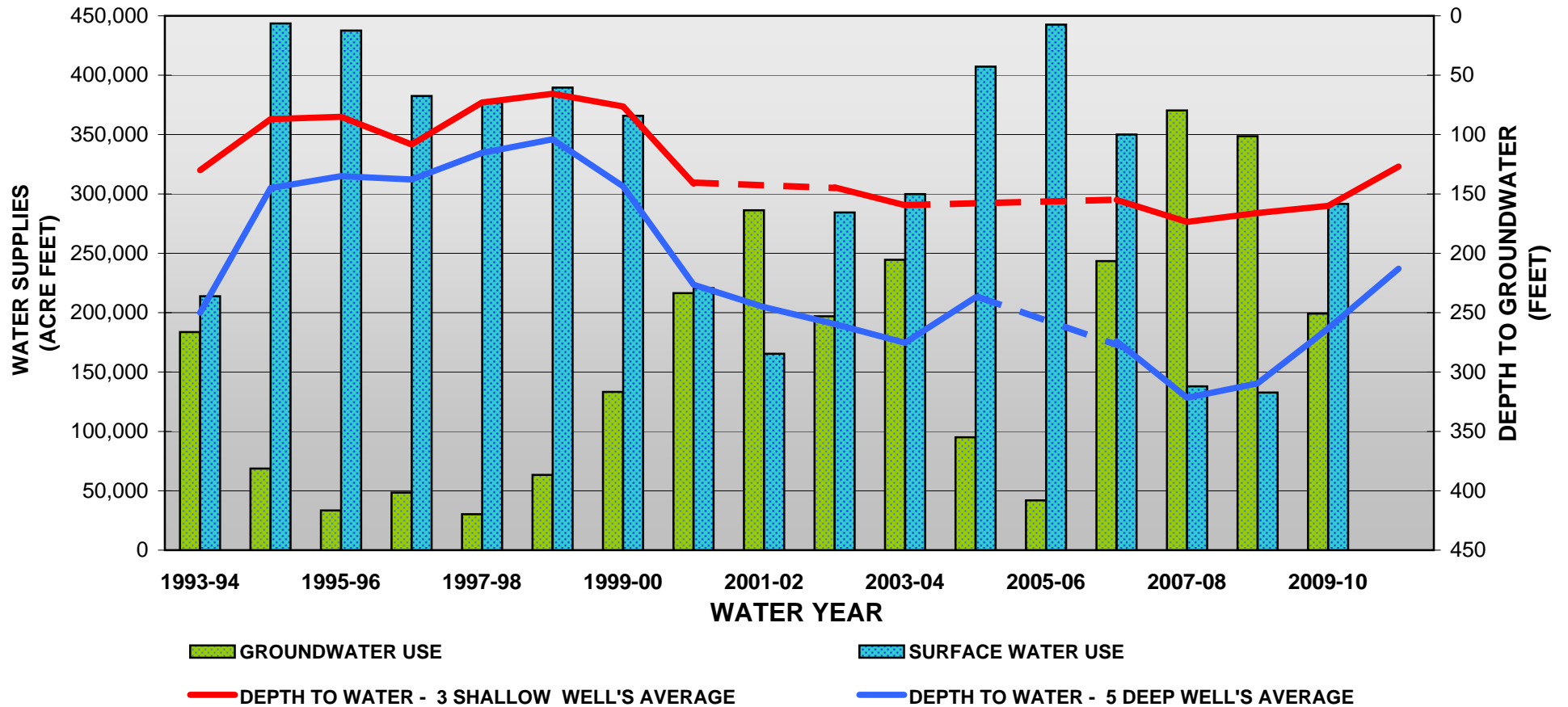
**TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN**

TULARE LAKE BED  
GEOLOGIC CROSS SECTION

**SUMMERS ENGINEERING INC.**  
HANFORD Consulting Engineers CALIFORNIA

FIGURE 14

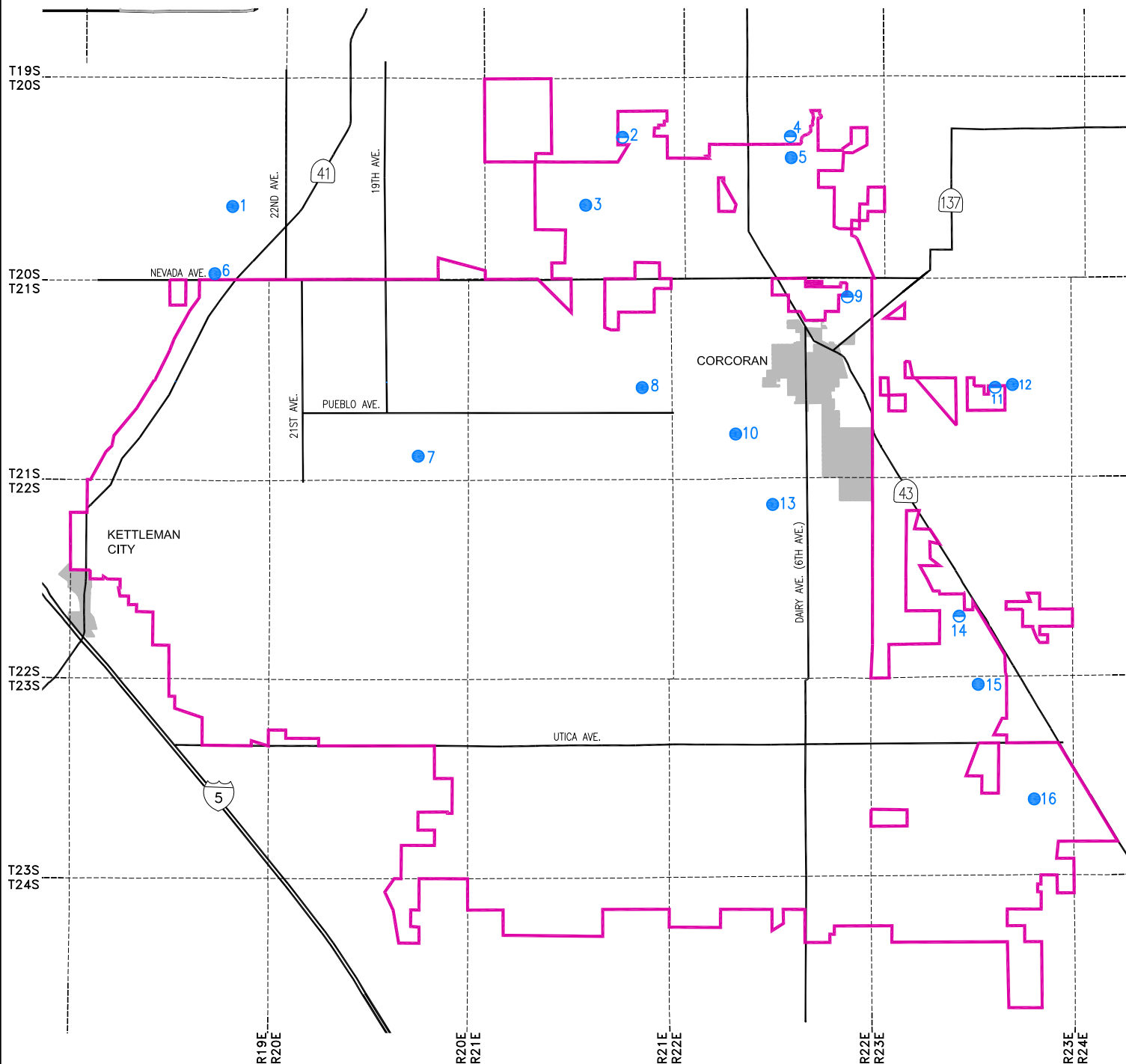
# **TULARE LAKE BED COORDINATED GROUNDWATER MANAGEMENT PLAN** **Depth to Water vs. Water Supplies**



**NOTES:**

1. DASH LINE REPRESENTS MISSING DATA.
2. DEPTH TO GROUNDWATER IS AN AVERAGE OF THREE (3) SHALLOW WELLS AND FIVE (5) DEEP WELLS LOCATED WITHIN THE PLAN AREA.
3. WATER SUPPLIES EXCLUDE DELIVERIES TO LANDS WITHIN THE TULARE LAKE RECLAMATION DISTRICT NO. 761.

FIGURE 15

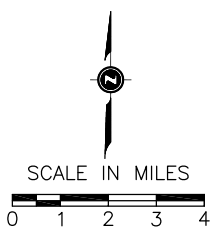


**LEGEND**

- GROUNDWATER MANAGEMENT PLAN BOUNDARY
- SHALLOW CASGEM WELL
- DEEP CASGEM WELL

TULARE LAKE BED COORDINATED  
GROUNDWATER MANAGEMENT PLAN

CASGEM WELLS  
LOCATION MAP



## **JOINT POWERS AGREEMENT**

### **Groundwater Management California Water Code Section 10750 et seq**

This Joint Powers Agreement (JPA) is made and entered into in the County of Kings, State of California, by and among those local agencies providing water service to all or a portion of the respective service areas, hereinafter collectively referred to as "Members" which are those districts signatory to this Agreement as set forth in Exhibit A attached hereto and made a part hereof.

### **RECITALS**

**WHEREAS**, Sections 10750 et seq of the California Water Code permits any local agency that provides water service to all or a portion of its service area to adopt and implement a groundwater management plan; and

**WHEREAS**, Water Code Section 10755.2 expresses the intent of the Legislature to encourage local agencies within the same groundwater basin, that are authorized to adopt groundwater management plans, to adopt and implement a coordinated groundwater management plan and that such local agencies may enter into a joint powers agreement for such purpose pursuant to Chapter 5 (commencing with Section 6500) of Division 7 of Title 1 of the Government Code; and

**WHEREAS**, it is not the intent of the parties hereto to create a new legal agency or entity; and

**WHEREAS**, Water Code Section 10755.2 further authorizes said local agencies to enter into memorandums of understandings or agreements with public or private entities providing water service for the purpose of implementing a coordinated groundwater management plan; and

**WHEREAS**, Section 10755.3 requires local agencies within the same groundwater basin that conduct groundwater management programs within that basin to at least annually meet and coordinate such programs; and

**WHEREAS**, the Members of this joint powers agreement deem it in their best interests to enter into a joint powers agreement to coordinate and implement a groundwater management plan for the general historic Tulare Lake Bed area for the development and implementation of a groundwater management plan.

**NOW, THEREFORE, IN CONSIDERATION** of the mutual promises, covenants, terms and conditions hereinafter set forth, it is agreed by and among the members hereto as follows:

#### ARTICLE I - DEFINITIONS

1. As used in this Agreement, the meaning of the terms hereinafter set forth shall be as follows:

- (a) "JPA" - shall mean this joint powers agreement.
- (b) "Executive Committee" - shall mean the representatives of the Members and Private Parties as established by Article V of this Agreement.
- (c) "Members" - shall mean those local agency districts executing this Agreement.

#### ARTICLE II - PURPOSE

2. This JPA is entered into for the express purpose of creating and implementing a coordinated groundwater management plan and program pursuant to Water Code Section 10750 et seq; to promote and encourage local groundwater management in neighboring areas; to enter into memorandums of understanding and agreements with private entities and parties to involve them in a coordinated groundwater management plan and program; to gather and generate information on groundwater management, water conservation and water development for dissemination among the Members, the public,

landowners within the respective service areas and to the various legislators and regulatory agencies; to jointly exercise some or all of the groundwater management powers of the Members; to perform all acts necessary or proper to carry out fully the purpose of this Agreement; and to the extent not herein specifically provided for to exercise any powers in the manner and according to the methods provided under the laws applicable to the member districts.

### ARTICLE III - MEMBERS

3. Local agencies, as defined in Water Code Section 10752(g), with jurisdictional boundaries lying within or adjacent to the historic Tulare Lake Bed providing water service to all or a portion of their respective service areas may, upon approval by a majority of the Executive Committee, become a Member.

### ARTICLE IV - PRIVATE PARTY M.O.U.'S AND AGREEMENTS

4. The collective Members of this JPA may enter into Memorandums of Understanding or Agreements with private parties or entities (Private Parties) for the purpose of broadening and furthering the coordinated groundwater management plan to be created and implemented under this JPA. Private Parties entering into such Memorandums of Understanding or Agreements that are consistent with this JPA may participate in and be a part of the executive committee, as provided in Article V.

### ARTICLE V - EXECUTIVE COMMITTEE

5. An Executive Committee consisting of one representative from each of the Members and one representative collectively chosen from the Private Parties described in Article IV shall meet regularly to direct and conduct the activities under this JPA. Such Executive Committee representatives shall sit on the committee at the pleasure of the respective appointing Members or Private Parties.

6. Each representative being a part of the Executive Committee shall be entitled to one vote. All decisions of the committee shall be by majority vote.

7. The Executive Committee shall be responsible for carrying out the purposes enumerated in Article II. It shall have the power to retain contractors, consultants and employees.

#### ARTICLE VI - EXPENSES

8. Expenses of carrying out the purposes of this JPA shall be allocated and assessed to the Members and Private Parties based on acreage within their respective service areas. Members and/or Private Parties with overlapping boundaries/acreage shall agree among themselves as to which Member or Private Party (or a combination of each) shall pay the assessments so that every acre of land represented under this JPA is equally assessed. The Executive Committee shall determine the amount to be periodically assessed to the Members and participating Private Parties.

9. Local agencies (or Private Parties participating in this JPA under a Memorandum of Understanding or Agreement pursuant to Paragraph 4 above) who join in this JPA after expenses have been incurred shall pay to the JPA Treasurer an amount determined by the Executive Committee to defray prior costs and expenses of developing and/or implementing the Groundwater Management Plan.

10. All assessments shall be paid within 45 days of invoice from the JPA Treasurer. Any assessment that becomes delinquent shall be charged a 10% penalty and interest shall accrue thereon at the rate of 10% per annum. Should any assessment remain delinquent for more than 90 days, that Member's or Private Party's interest in this JPA shall be terminated at the discretion of the Executive Committee. Should the Executive Committee elect to terminate said Member's or Private Party's interest in this JPA, the terminated Member or Private Party shall remain responsible and liable for its share of all the then outstanding debts and obligations under this JPA.

#### ARTICLE VII - ADMINISTRATIVE OFFICE

11. The Tulare Lake Basin Water Storage District shall be designated as the administrative office to maintain the records and accounts established to implement this



JPA. All books, accounts and records shall be open for review by the Members during normal business hours.

12. Meetings of the Executive Committee shall be held at the office of the Tulare Lake Basin Water Storage District located at 1109 Whitley Avenue, Corcoran, California.

13. The Tulare Lake Basin Water Storage District shall be reimbursed for its overhead and expenses attributable to the administration of this JPA.

#### ARTICLE VIII - SECRETARY/TREASURER

14. The Executive Committee shall elect a Secretary and a Treasurer to keep the necessary Minutes, Books, Accounts and other reports to properly document the affairs of the JPA, including satisfying the applicable requirements of Government Code Section 6505. Said Minutes, Books, Accounts and other reports shall be separate and independent from those of any of the Members.

#### ARTICLE IX - TERMINATION

15. Any Member may voluntarily terminate its interest in this JPA upon 60 day written notice to the other Members. The terminating Member shall not be released from this JPA unless and until its share of all outstanding bills and debts as of the date of the notice have been paid.

16. In the event this JPA is terminated, any surplus money and property shall be returned to the then current Members in proportion to their respective contributions to the JPA during the immediately preceding 12-month period.

#### ARTICLE X - AMENDMENTS

17. This JPA may be amended on a 2/3 vote of the Executive Committee.

#### ARTICLE XI - COUNTERPARTS

18. This JPA may be executed in any number of counterparts and each such counterpart execution shall be treated as if all parties executing this JPA had executed one original.

**WHEREFORE, IN CONSIDERATION OF THE ABOVE TERMS AND CONDITIONS,**  
the undersigned local agencies have caused this JPA to be executed by their duly  
authorized representatives.

<u>AGENCY</u>	<u>SIGNED BY</u>	<u>DATE</u>
Alpaugh Irrigation District	Steve Martin	04/11/94
Angiola Water District	James Provost	05/05/94
Atwell Island Water District	Dennis Keller	10/09/95
City of Corcoran	Don Pauley	09/03/96
Corcoran Irrigation District	Jess Hansen	04/12/94
Melga Water District	Tom Hurlbutt	08/17/95
Tulare Lake Basin Water Storage District	Steve Tompkins	04/05/94

**TULARE LAKE BED  
COORDINATED GROUNDWATER MANAGEMENT PLAN**

**MEMORANDUM OF UNDERSTANDING**

WHEREAS, California Water Code Section 10750, et seq. permits any local agency that provides water service to all or a portion of its service area to adopt and implement a Groundwater Management Plan; and

WHEREAS, Water Code Section 10755.2(b) authorizes local agencies to adopt and implement a coordinated groundwater management plan by entering into joint powers agreement; and

WHEREAS, a group of local agencies, hereinafter "Members," within the Tulare Lake Bed have entered into a Joint Powers Agreement, hereinafter "JPA," for the purpose of developing and adopting a coordinated groundwater management plan for the general historic Tulare Lake Bed area; and

WHEREAS, the Members have now adopted a groundwater management plan known as the "Tulare Lake Bed Coordinated Groundwater Management Plan," hereinafter "Plan"; and

WHEREAS, Water Code Section 10755.2(c) authorizes local agencies to enter into agreements with public entities or private parties for the purpose of implementing a coordinated groundwater management plan; and

WHEREAS, one of the purposes of the Plan is to promote and encourage local groundwater management in neighboring areas by entering into memorandums of understanding and agreements with private entities and parties to involve them in a coordinated groundwater management plan and program; and

WHEREAS, pursuant to Article IV of the JPA, the collective Members may enter into Memorandums of Understandings or Agreements with private parties or entities for the purpose of broadening and furthering the Plan to be created and implemented under the JPA; and

WHEREAS, private parties or entities entering into such Memorandums of Understandings or Agreements in accordance with the JPA may have their lands governed under the Plan.

NOW, THEREFORE, the Members of the JPA and \_\_\_\_\_, hereinafter "Landowner," enter into this Memorandum of Understanding, hereinafter "MOU," in accordance with the requirements of Water Code Section 10750, et seq., and the JPA and agree as follows:

1. Landowner enters into this MOU for the purpose of furthering the Tulare Lake Bed Coordinated Groundwater Management Plan.

2. Landowner agrees to be bound by and comply with the terms and conditions of the JPA and any amendments or changes thereto, all of which are expressly made a part hereof.

3. The lands of Landowner identified in Exhibit "A," attached hereto and made a part hereof, shall be subject to this MOU and bound under the terms of the JPA.

4. Landowner agrees that the lands subject to this MOU shall be treated and governed in the same manner and effect as those of the Members. Landowner further agrees to cooperate and provide any necessary information or data needed to implement the Plan.

5. Landowner or the Members may terminate this MOU upon a sixty (60) day written notice to the other. Landowner shall remain responsible for his/her/its share of all outstanding bills, debts or assessments as of the date of the notice.

6. This Agreement shall be binding on and inure to the benefit and obligation of the respective successors, heirs and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties have had their duly authorized officers or representatives execute this MOU as of this \_\_\_\_ day of \_\_\_\_\_, 19\_\_.

JPA

LANDOWNER

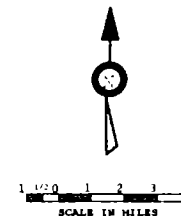
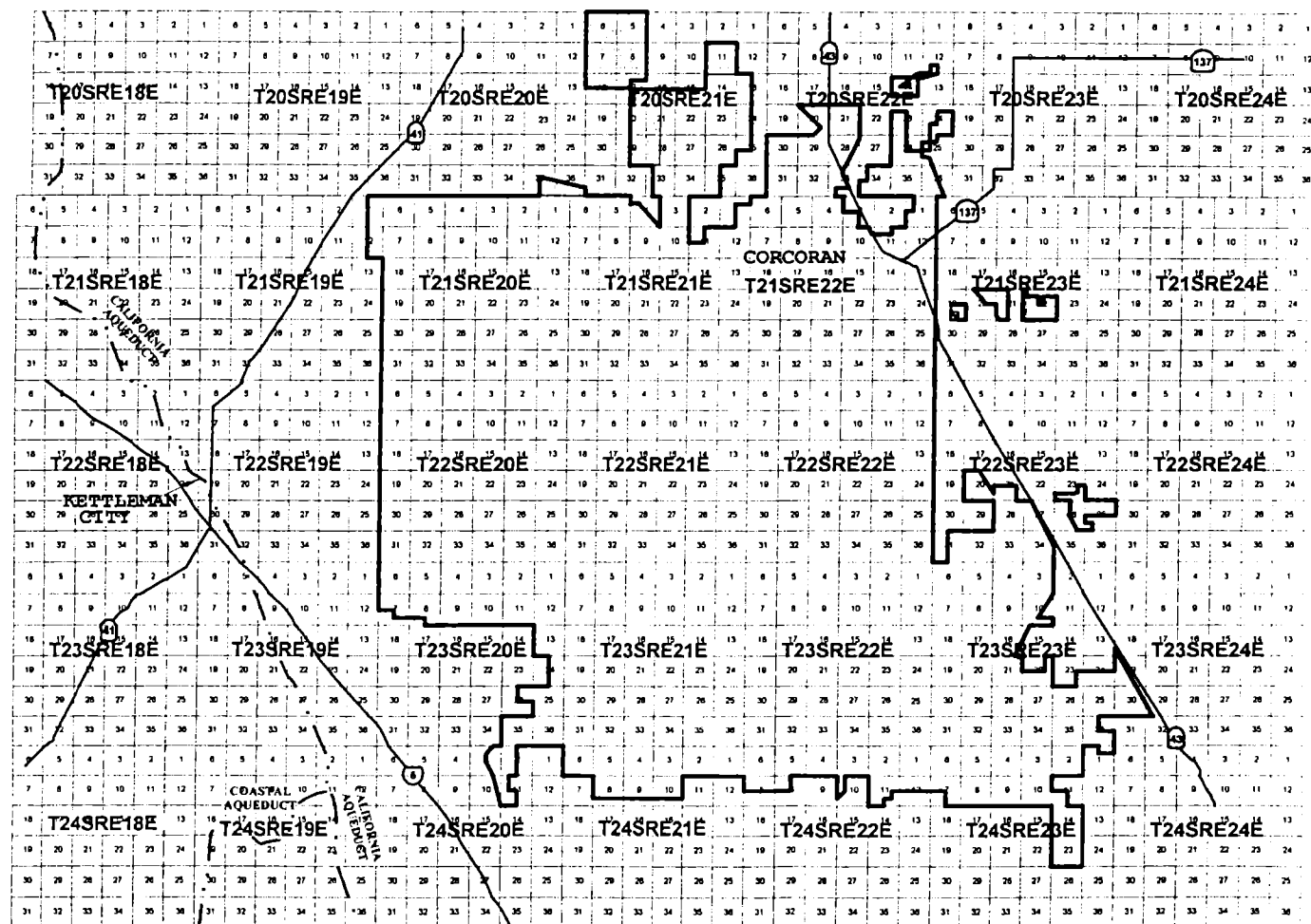
By: \_\_\_\_\_

By: \_\_\_\_\_

## Memorandum of Understanding Lands To Be Included In The Plan

[illegible]

# TULARE LAKE BED COORDINATED GROUNDWATER MANAGEMENT PLAN BOUNDARY



## LEGEND



TULARE LAKE BASIN WSD  
STAFF ENGINEER  
CORCORAN, CALIFORNIA  
MAY 1998  
REVISED JANUARY 1999

## **ADDITIONAL JPA & MOU PLAN PARTICIPANTS**

The Plan was developed to document the local groundwater management practices and conjunctive use programs, encourage the importation of surface water supplies, promote efficient water practices and conservation programs, and preserve local management of the groundwater resources in the Tulare Lake Bed area. The Plan's Executive Committee actively encourages local public entities and private landowners to join the Plan. As stated in the introduction of the Plan, this Plan shall be amended to reflect the inclusion of additional public agencies that may enter into the Joint Powers Agreement (JPA) and private landowners executing a Memorandum of Understanding (MOU). Exhibit A indicates the Plan boundary encompassing the additional JPA and MOU Plan participants lands. Additions of Participants to the Plan are depicted on an amended Exhibit 1 of the Plan and Exhibit A. Also, Exhibit B lists the JPA and MOU members now included in the Plan, the JPA/MOU signing date, and the date the Plan's Executive Committee formally approved the inclusion (for public agencies this is the date their Board of Directors adopted the Plan).

### **A. Addition of JPA Member: Lovelace Reclamation District No. 739**

The Lovelace Reclamation No. 739 (LRD739) became the eight public agency and the seventh agricultural district to join the Plan. LRD739 comprises approximately 5,900 acres of which 1,770 acres overlaps the Tulare Lake Basin Water Storage District (TLBWSD) boundary. Therefore an additional 4,130 acres was added to the gross Plan acreage. Exhibit C indicates the location of LRD739.

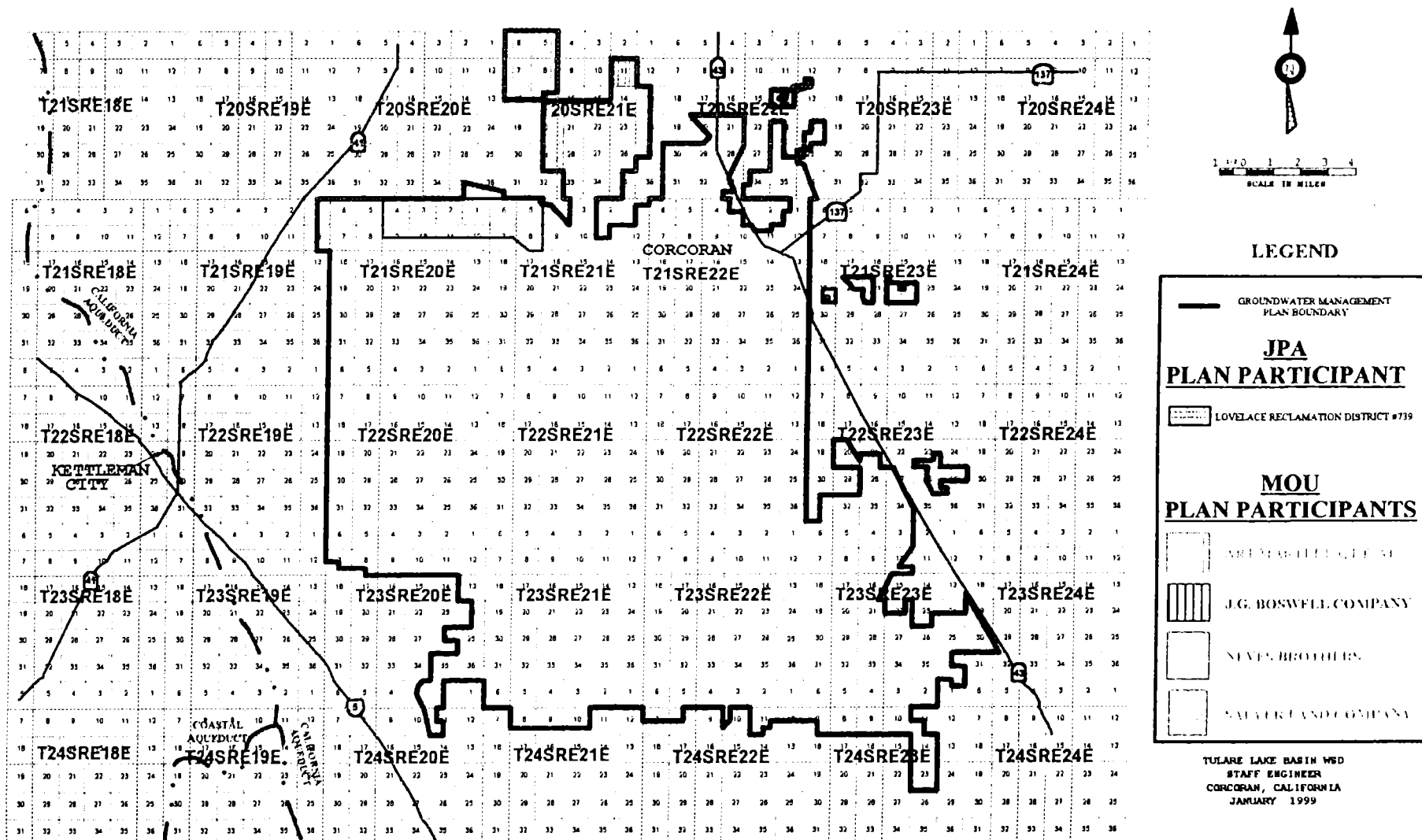
LRD739 consists of highly productive farmland. The local water supply principally exists from water rights held on the Kings River by the landowners within LRD739. The lands overlapping TLBWSD have the right to contract for State Water Project water as a result of TLBWSD contracting for the water in 1963 with the Department of Water Resources. In addition, during wet years, residual floodwater from the Kings and Kaweah Rivers is utilized by landowners. During dry periods, the landowners supplement the local surface water supply with privately owned groundwater wells pumped from the Plan area.

### **B. Addition of MOU Members**

Beginning in September 1997, private landowners began to join the Plan by executing an MOU. The lands share the common Tulare Lake Bed groundwater basin and do not lie in any other groundwater management plan. The landowners are illustrated on Exhibit A and listed on Exhibit B. The approved MOU lands total approximately 6,900 acres. This acreage total shall be amended to reflect additional MOU lands included in the Plan.

Water supplies for the MOU Plan participants include Kings River water rights; residual floodwater from the Kings, Kaweah, and Tule Rivers; and/or groundwater from privately owned wells.

# TULARE LAKE BED COORDINATED GROUNDWATER MANAGEMENT PLAN BOUNDARY AND JPA / MOU LANDS MAP





**LIST OF ADDITIONAL JPA & MOU PLAN PARTICIPANTS**  
**EXHIBIT B**

<b><u>JPA PLAN PARTICIPANT</u></b>	<b><u>JPA DOCUMENT SIGNING DATE</u></b>	<b><u>BOARD OF DIRECTORS ADOPTION DATE</u></b>
--	---	--

Lovelace Reclamation  
District No. 739

January 23, 1998

June 24, 1997

- Approval of the inclusion of LRD739 into the Plan by Plan's Executive Committee also occurred on June 24, 1997.

<b><u>MOU PLAN PARTICIPANT</u></b>	<b><u>MOU DOCUMENT SIGNING DATE</u></b>	<b><u>EXECUTIVE COMMITTEE APPROVAL DATE</u></b>
--	---	---

J.G. Boswell Company

January 23, 1998

January 27, 1998

Art & Jane Martella Trust

February 16, 1998 \*

January 27, 1998

Neves Brothers

March 3, 1998

March 24, 1998

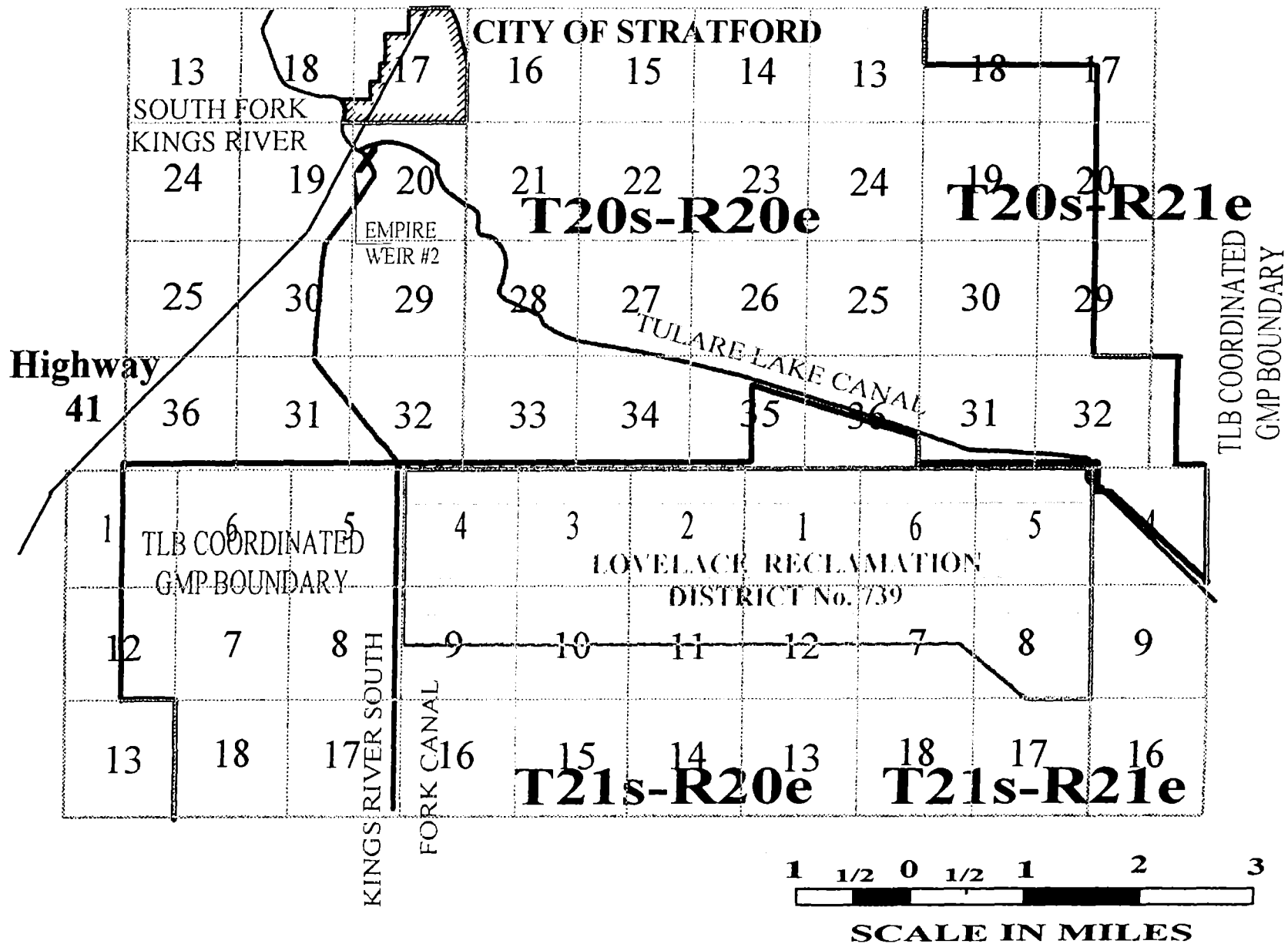
Salzer Land Company

August 12, 1997

September 23, 1997

\* Approval by Executive Committee was granted subject to receiving a signed MOU (received shortly after the date of the Executive Committee meeting).

# BOUNDARY MAP OF LOVELACE RECLAMATION DISTRICT No. 739



## **ATTACHMENT 6**

### **Water Quality Analysis**

**Table 4-1 Mean Water Quality at Selected SWP Grab Sample Locations<sup>a</sup> in 2012**

Constituent	Units <sup>b</sup>	Reporting Limit	Thermalito Afterbay at Outlet	North Bay Aqueduct, Barker Slough Pumping Plant	Delta-Mendota Canal Upstream of McCabe Road	California Aqueduct					
						Banks Pumping Plant	O'Neill Forebay Outlet (Check 13)	Kettleman City (Check 21)	Near Highway 119 (Check 29)	Tehachapi Afterbay (Check 41)	Devil Canyon 2nd Afterbay
Alkalinity	mg/L as CaCO <sub>3</sub>	1	40	100	87	70	74	72	72	72	72
Antimony	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NR	NR
Arsenic	mg/L	0.001	<0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Beryllium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	mg/L	0.1	<0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Bromide	mg/L	0.01	<0.01	0.04	0.28	0.25	0.26	0.26	0.24	0.25	0.23
Calcium	mg/L	1	8	16	26	19	20	20	21	20	20
Chloride	mg/L	1	<1	23	91	78	80	83	74	77	72
Chromium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	mg/L	0.001	<0.001	0.002	0.001	0.001	0.001	0.001	<0.001	0.001	0.001
Hardness	mg/L as CaCO <sub>3</sub>	1	36	99	131	99	106	102	100	100	94
Iron	mg/L	0.005	0.006	0.051	0.013	0.018	0.013	0.007	0.005	<0.005	<0.005
Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	mg/L	1	4	14	16	13	14	13	12	12	11
Manganese	mg/L	0.005	<0.005	0.026	0.005	0.011	0.006	<0.005	<0.005	<0.005	<0.005
Nitrite + Nitrate	mg/L as N	0.01	<0.01	0.15	0.93	0.48	0.55	0.50	0.54	0.49	0.39
Organic Carbon, Dissolved	mg/L as C	0.5	NR	7.0	3.9	4.0	3.4	3.9	3.0	3.1	2.7
Organic Carbon, Total	mg/L as C	0.5	NR	7.8	4.0	4.1	3.6	3.5	3.5	3.2	3.0
Phosphate-Ortho	mg/L as P	0.01	<0.01	0.13	0.11	0.06	0.06	0.06	0.06	0.08	0.05
Phosphorus-Total	mg/L	0.01	<0.01	0.25	0.15	0.09	0.09	0.09	0.08	0.15	0.07
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Sodium	mg/L	1	3	29	69	54	57	57	54	54	52
Specific Conductance	µS/cm	1	84	326	612	469	483	491	477	475	457
Sulfate	mg/L	1	2	25	62	34	35	35	37	34	33
Total Dissolved Solids	mg/L	1	54	189	344	264	269	273	265	268	254
Turbidity	NTU	1	2	25	8	6	4	4	3	4	<1
Zinc	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005

<sup>a</sup> A grab sample is a single sample chosen to represent the conditions in a given matrix (usually natural water) at a specific location, depth, and time. All reported constituents are the annual mean of laboratory analytical values sampled monthly from January through December. The annual mean may be based upon one to twelve samples for the list of constituents. When one or more analytical results for a constituent are non-detect, the mean is calculated using "0" for the non-detect results, which accounts for some mean values that are less than the reporting limit.

<sup>b</sup> mg/L = milligrams per liter; µS/cm = microsiemens per centimeter; NTU = nephelometric turbidity unit; NR = No data recorded at this location.

## **ATTACHMENT 7**

### **Summary of Flowrate Measuring Devices for Turnouts from District Conveyance Facilities**

## TULARE LAKE BASIN WATER STORAGE DISTRICT

### SUMMARY OF FLOWRATE MEASURING DEVICES FOR TURNOUTS FROM DISTRICT CONVEYANCE FACILITIES

District Conveyance Facility	Measuring Device	Method of Recording Water Levels
<b>Kings River Empire Weir No. 2 Pool</b>	- Parshall Flume	Float still well and chart recorder
	- Rectangular Sluice Gate	Float still well and chart recorder
	- Sharp Crested Weir	Float still well and chart recorder
<b>State Project Water: Lateral A</b>	- Propeller-type Flowmeters	Flow totalizer
	- Parshall Flume	Float still well and chart recorder
	- Venturi Meter	Float still wells and differential recorders
<b>State Project Water: Lateral B</b>	- Cipolletti Weir	Float still well and chart recorder
	- Parshall Flume	Float still well and chart recorder
	- Propeller-type Flowmeters	Flow totalizer
	- Venturi Meter	Float still wells and differential recorders

## **ATTACHMENT 8**

**2013 Through 2017 State Water Service Contract**

**2013 THROUGH 2017**  
**STATE WATER SERVICE CONTRACT**

This contract, hereinafter referred to as "Water Service Contract," made and entered into on the effective date hereof, in pursuance of powers granted by Division 14 of the Water Code of the State of California, by and between TULARE LAKE BASIN WATER STORAGE DISTRICT, hereinafter referred to as "District," a California Water Storage District organized and existing under provisions of said Division 14 of the California Water Code and the undersigned landowner(s), hereinafter sometimes referred to as "Water User(s),"

**WITNESSETH**, that:

**EXPLANATORY RECITALS**

*WHEREAS*, District has duly, regularly, and according to law, entered into a contract with the State of California, Department of Water Resources, for a water supply, which contract is dated December 20, 1963; and,

*WHEREAS*, said contract has been amended from time to time and may be so amended in the future from time to time; and,

*WHEREAS*, said contract as now amended and as may be amended is referred to herein as the "State Contract"; and,

*WHEREAS*, District duly, regularly, and according to law, adopted General District Project No. 4, which Project provided among other things for the construction of Laterals A and B as conduits for the transmission of water acquired under the terms of State Contract from the California Aqueduct; and,

*WHEREAS*, the District transmission facilities have been completed; and,

*WHEREAS*, by the terms of the State Contract, District is obligated to pay for State Water Project Table A Entitlement Water whether or not District fails or refuses to accept delivery or State is unable to provide delivery of any or all thereof; and,

*WHEREAS*, on March 6, 2001 the Board adopted a policy regarding Conditions for Permanent Transfer of State Project Table A Entitlement Water Right Out of the District. The Policy was subsequently terminated when it was incorporated into the District's Rules and Regulations which may be amended from time to time; and,

*WHEREAS*, the Hacienda Water District State Water Supply Contract has been consolidated with District's State Contract as per Amendment No. 16 to the State Contract dated February 11, 1981; and,



WHEREAS, the benefits of the State Water Supply Contract Assessment, General District Project No. 1, General District Project No. 3 (retired), General District Project No. 4 (retired), and General District Project No. 5 (retired), accrue to only those lands within the District; and,

WHEREAS, the contracts with Water Users presently executed terminate on December 31, 2012; and,

WHEREAS, the Board of Directors of District is of the opinion that the best interest of the District will be served by offering five-year State Water Service Contracts to Water Users; and,

WHEREAS, the State Water Supply Contract Assessment Roll has been filed with the County Treasurers' of Kings and Tulare Counties and assessments may be levied to pay periodic charges under the State Contract to the extent that funds are not otherwise available for the payment of such charges, all as provided for in Section 44030 of the California Water Code (California Water Storage District Law);

**NOW, THEREFORE, IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES TO THIS STATE WATER SERVICE CONTRACT AS FOLLOWS:**

## **1. DEFINITIONS**

(a) Agricultural Use means any use of water primarily in the production of crops or livestock for market, including any use incidental thereto for domestic or stock watering purposes.

(b) Annual Entitlement means the amount of entitlement water to be made available to District during the respective Year at the California Aqueduct delivery structures provided for District, under the terms of the State Contract, as shown in Table A thereof or as amended.

(c) Article 21 Water means water available from the Delta at various times during the Year and as defined by Article 21 in the State Contract.

(d) Board means the body of members duly constituted as the Board of Directors of the Tulare Lake Basin Water Storage District.

(e) Carryover Water means water carried from one year to the next under the provisions of the State Contract Article 12(e) and/or Article 56(c).

(f) Contract Amount of Water means the amount of water equal to the sum of Water User's Table A Water, Article 21 Water, Turnback Pool Water, and/or other Project Water which District agrees to deliver, or make available for delivery, to Water User(s) in each Year based in proportion to Water User's respective Table A Water as shown in

Exhibit A attached hereto and made a part hereof, subject to the provisions of this Water Service Contract and the State Contract.

(g) Contract Water Service means the delivery, or the availability for delivery, of the Contract Amount of Water through District Turnout(s) each and every Year during the term hereof at times and rates of delivery requested by Water User(s), subject to the provisions of this Water Service Contract and the Rules and Regulations adopted by the Board.

(h) District means Tulare Lake Basin Water Storage District.

(i) District Rate means the unit rate cost per acre foot for available Table A Water, that includes all State charges and the District Water Service Charge.

(j) District Water Service Charge means the charges that Water User(s) shall pay District (per Section 6) for costs of operation, maintenance, and replacement of Project Facilities and costs related to the State Contract, the Water Service Contract and other matters directly associated with and attributed to Project Water.

(k) Non-District Water means water conveyed through Project Facilities per Rules and Regulations that is neither contracted for by District, nor for the benefit of District as a whole.

(l) Off-Aqueduct Charge means the annual charges by the State for Off-Aqueduct Power Facilities allocated among Water Users.

(m) Project Facilities means District's transmission system, including Laterals A & B, and installations and related facilities owned, controlled, and operated by the District having the purpose of diversion, conveyance, control, measurement, and delivery of water.

(n) Project Water means all water obtained by, or available to, District under the State Contract, including Annual Entitlement, Article 21 Water, and Turnback Pool Water.

(o) Rules and Regulations means Rules and Regulations as adopted by the Board pursuant to Section 43003 of the Water Code, and as such Rules and Regulations may be amended from time to time.

(p) State means the State of California acting by and through the Department of Water Resources.

(q) State Contract means the Water Supply Contract between District and the State of California, Department of Water Resources, dated December 20, 1963, and any amendments of said State Contract which have been executed or may be executed during the term of this Water Service Contract.

(r) Supplemental Water means all water other than Project Water obtained by, or available to, District and delivered through Project Facilities, including California Drought Bank Water and Supplemental Purchase Water, but excepting Non-District Water.

(s) Supplemental Water Charge means the charge which Water User shall pay for all costs attributed to Supplemental Water.

(t) Table A Water means the Water User's allocated share of Annual Entitlement under the terms of this Water Service Contract.

(u) Trust Fund means the Agricultural Rate Management Trust Fund established by the Monterey Amendment (Amendment No. 25 to the State Contract) that shall, to the extent there are funds available in the District's account in the Trust Fund, and as requested by the District, make distribution to the State on the District's behalf, or make distribution to the District which shall in turn make the payment to the State in years when: (1) the District's Table A Entitlement, by April 15<sup>th</sup> of that year, is less than 100% of the District's annual requested Table A Entitlement; or (2) by April 15 of any year, irrigable lands are flooded or are not timely planted in the District. The District's account in the Trust Fund shall be funded by monies collected by the District from the Water Users.

(v) Trust Fund Accounts means the individual Water Users' accounts that shall be established by the District to administer the Trust Fund internally among the Water Users.

(w) Turnback Pool means the Program developed annually under the terms and conditions of the State Contract that allows the District to purchase or to offer Table A Entitlement water for sale to other State Water Project Contractors on behalf of the Water Users.

(x) Turnback Pool Water means water purchased by District under the State Contract, Article 56(d).

(y) Turnback Pool Water Charge means the charge in dollars that Water User(s) shall pay for all costs attributed to the purchase of Turnback Pool Water.

(z) Turnout(s) means any structure constructed for the purpose of diverting water to the Water Users from Project Facilities.

(aa) Water Availability Charge means the charge the Water User shall pay each Year on Table A Water, regardless of whether or not all or a portion of Table A Water is delivered to, or taken by, Water User and shall include the District Water Service Charge.

(bb) Water Service Contract means this five Year agreement for water service between District and Water User(s).

**(cc)** Water Use Charge means the charges that Water User shall pay for water deliveries under the provisions of Paragraph 6(c) of this Water Service Contract.

**(dd)** Water User(s) means that person or entity owning land within the boundaries of District, or the successor in interest, who has executed a Water Service Contract or who has been assessed pursuant to and under the provisions of said Section 44030 of the California Water Code.

**(ee)** Year means the twelve-month period from and including January 1 of any Year through December 31 of said Year.

## **2. INTERLAKE AGREEMENT CONTROVERSY**

District and Water User(s) expressly recognize that a controversy exists as to the meaning and effect of the Interlake Agreement, dated January 7, 1930 and it is expressly understood that the transmission of water through Project Facilities for use within District, is not to be and shall not be construed as ownership or operation of distribution facilities within District and that said controversy is expressly left unresolved and undetermined by this Water Service Contract.

## **3. CONTRACT WATER SERVICE**

**(a)** The provisions for payment for Contract Water Service shall be effective, regardless of whether or not Water User takes delivery of his Contract Amount of Water, unless otherwise provided herein.

**(b)** Subject to the provisions of this Water Service Contract, District agrees to furnish Contract Water Service to each Water User in each Year, at Turnout(s), his respective Contract Amount of Water, subject to the availability of Project Water.

**(c)** In the event that District obtains an increase in its Project Water or an allocation of Supplemental Water, Water User may, at his option, participate therein with other Water Users, in proportion to the Water User's respective Table A Water.

**(d)** District agrees that it shall at all times endeavor, through State Contract, to obtain and deliver at Turnouts, the full Contract Amount of Water to Water Users at the least cost, subject to the provisions of the Rules and Regulations.

**(e)** Article 21 Water shall be made available and delivered in accordance with the terms of the State Contract. District shall make Article 21 Water available to Water Users to the extent Article 21 Water is available to District.

**(f)** Under the terms of the State Contract, District is permitted to carry over water for delivery in the subsequent Year(s). In no event shall a Water User be permitted to carry over water into the succeeding Year(s), unless the District has been permitted to do so in accordance with provisions of the State Contract. In the event there is inadequate carryover space in San Luis Reservoir at any time to accommodate all carryover requests, Water User's share of District carryover space shall be in proportion to the Water User's respective Table A Water as compared to other Water Users' respective Table A Entitlement that are requesting to carry over water. Any and all Carryover Water shall be at risk of displacement or conversion in the event the State is in need or requires project storage space. Water User shall not be entitled to any reimbursement for or replacement of Carryover Water lost by the Water User.

**(g)** District is subject to delivery priorities established by the State Contract. District shall attempt to deliver all waters to Water Users in accordance with delivery requests. In the event Project Facilities are inadequate at any time to convey all of the water requests by Water Users for delivery, allocation of conveyance capacity will be made in accordance with the Rules and Regulations.

#### **4. CONDITIONS OF DELIVERY OF WATER**

**(a)** Water furnished under this Water Service Contract is in a raw untreated condition and, as a result, is considered to be unfit for human consumption without treatment.

**(b)** District shall deliver water to Turnouts through Project Facilities in accordance with the Rules and Regulations.

**(c)** Only District employees shall operate Project Facilities. Water User hereby agrees District and/or its employees shall have full authority to stop all water deliveries to Water User when the amount of water ordered and available pursuant to this Water Service Contract has been delivered or in the event the Water User is in breach or default of this Water Service Contract.

**(d)** District shall not be responsible for the control, carriage, handling, use, disposal, or distribution of water delivered to Water User hereunder outside Project Facilities. Water User does hereby agree to indemnify and shall assume the defense of and hold harmless District, and its officers, agents, and employees from any and all loss, damage liability, claims, or causes of action of every nature whatsoever, for damage to or destruction of property, including District property, or for injury to or death of persons, in any manner arising out of or incidental to the control, carriage, handling, disposal, or distribution of water outside such Project Facilities.

**(e)** The character and quality of water furnished hereunder may vary from time to time, and District does not guarantee in any respect the character or quality of the water delivered pursuant to this Water Service Contract.

**(f)** District may temporarily discontinue or reduce the amount of water to be furnished to Water User as herein provided, for the purpose of investigation, inspection, maintenance, repair, or replacement, as may be reasonably necessary, of any of the Project Facilities for the furnishing of water to Water User, or of the facilities of the State. To the extent practicable, District shall give Water User notice in advance of such temporary discontinuance or reduction, except in case of emergency, in which case no notice need be given. In no event shall any liability accrue against District, or any of its officers, agents, or employees, for any damage, direct or indirect, arising from such temporary discontinuance or reduction of water deliveries.

**(g)** District shall not be liable for the failure to perform any portion of this Water Service Contract to the extent that such failure is due to regulatory actions or is caused by the failure of the State to perform any obligation imposed on the State by the State Contract; provided, however, that to the extent that District obligations are reduced by such failure on the part of the State, District shall make commensurate reduction in the obligations of Water User.

**(h)** In the event of any suspension, discontinuance, or reduction under the terms hereof, District shall upon the resumption of service, to the extent it may be possible to do so and within the ability of Water User to accept same, make every reasonable effort to deliver, within the same Year, the quantity of water which would have been furnished to Water User in the absence of such event or contingency. In the event District is unable to deliver the water in the same year, the Water User may then schedule the delivery of said undelivered water for the subsequent year, to the extent water is available under the State Contract.

**(i)** After initiation of Contract Water Service, there may at times occur a shortage in the quantity of any type of water available from the State to Water User pursuant to this Contract, and that in no event shall any liability accrue against District, its officers, agents, or employees, for any damage, direct or indirect, arising from a shortage due to problems of delivery, drought, or any other cause whatsoever, including but not limited to regulatory restrictions on Delta exports, flood, lightning, and earthquake; provided, however, that such shortage shall be a shortage beyond and outside of the control of District.

**(j)** Delivery adjustments from the California Aqueduct through Project Facilities shall be allocated monthly among the Water Users based on their respective monthly deliveries of all water compared with the total monthly deliveries for the Year of all water through Project Facilities. Such adjustments shall be equalized for all water deliveries for the Year.

**(k)** Conveyance Capacity of District's Lateral A is subject to and limited by the Agreement dated January 2, 1968, by and between District and the Empire West Side Irrigation District.

**(l)** It is recognized and understood that Project Facilities may be used to convey water made available to District under the terms of the Supplement to Kern River Water Settlement Agreement dated August 15, 1974, and the Agreement dated April 26, 1967, by and between the County of Kings of the State of California and the District.

**(m)** It is recognized and understood that Project Facilities will also be used from time to time to convey water made available to lands outside District boundaries in accordance with the provisions contained in the Department of Water Resources' letter dated July 10, 1970, and in "POLICY RE DELIVERY OF STATE PROJECT WATER TO LAND OUTSIDE OF DISTRICT BY ACTION OF THE BOARD OF DIRECTORS JANUARY 3, 1973," and further specified in "AGREEMENT BETWEEN TULARE LAKE BASIN WATER STORAGE DISTRICT (HEREIN TERMED DISTRICT) AND 'WATER USER' (HEREIN TERMED WATER USER) IN SUPPORT OF REQUEST FOR STATE CONSENT TO DISPOSITION OF PROJECT WATER OUTSIDE THE BOUNDARIES OF DISTRICT.", all as may be amended.

## **5. DELIVERY OF WATER**

**(a)** Water User shall make application for water deliveries under the Rules and Regulations.

**(b)** Consistent with the design and operational objectives of Project Facilities and giving consideration to requests for water service from all Water Users, District shall schedule water deliveries and deliver water to Water User as nearly in accordance with Water User's request as is practicable. District determination with regard to scheduling of water deliveries shall be final and conclusive; provided, however, that District, its officers, agents, and employees shall have acted in good faith and without partiality toward or bias against any Water User.

**(c)** Except as otherwise provided in Paragraph 3(f) hereof, and in the event Water User is unable to use all or any part of his Contract Amount of Water in any given Year, District shall, to the extent permitted under the terms of the State Contract and as may be allowed by the State, carry over such water for future delivery, at the option of Water User. Any additional charges resulting from such Carryover Water shall be paid by Water User.

**(d)** Upon expiration of this Water Service Contract, any water or any dollar credits shall remain, to the extent permitted under the terms of the State Contract and as may be allowed by the State, credited to the account of Water User and shall be delivered or the dollars credited to the Water User. Water User shall remain obligated for any and all charges due under this Water Service Contract. The District may offset and utilize any water or any dollar credits, including monies in the Trust Fund Account, to pay any and all outstanding charges due under this Water Service Contract.

## **6. PAYMENTS AND PROCEDURES FOR DISTRICT BILLINGS FOR CONTRACT WATER SERVICE**

(a) On or before September 1 of each Year, District shall notify Water User, in writing, of the estimated total monthly amount of the Water Availability Charge and Water Use Charges for Table A water for the following Year.

(b) The Water Availability Charge shall be Water User's share of District's fixed or recurring costs based in proportion to Water User's respective Table A Water, including, but not necessarily limited to, the following:

- (I) Capital Cost Component of the Delta Water Charge and the Transportation Charge.
- (II) Minimum Operation, Maintenance, Power, and Replacement Component of the Delta Water Charge and the Transportation Charge.
- (III) Replacement Charge.
- (IV) Off-Aqueduct Charge.
- (V) Water Revenue Bond Surcharge.
- (VI) District Water Service Charge.
- (VII) Other State Charges.

The Water Availability Charge shall be billed on a monthly basis. Payment on said charges must be received by District within thirty (30) days from date of invoice.

(c) The Water Use Charge shall include Water Users' cost of, but not be limited to, the following:

- (I) Project and Carryover Water – The variable or non-recurring costs associated with the delivery of Project Water or Carryover Water. Such charges shall be made on a uniform basis, in dollars per acre foot of water delivered from Project Facilities, and shall include, but not necessarily be limited to the Variable Operation, Maintenance, Power, and Replacement Component of the Delta Water Charge and the Transportation Charge.
- (II) Article 21 Water – In addition to the costs specified in Paragraph 6(c)(I) any State administrative charges, as provided in State Contract.
- (III) Turnback Pool Water – All charges imposed under State Contract for such deliveries.



**(IV) Other Project Water** – All charges imposed under the State Contract for such deliveries. The Water Use Charge shall be billed monthly on or about the tenth (10<sup>th</sup>) day following the month that delivery was made. District must receive payment on such charge(s) not later than thirty (30) days from the date of invoice.

**(d)** Supplemental Water Charge shall include all charges imposed by separate Contract with State for deliveries of Supplemental Water.

**(e)** Following receipt of any adjusted water cost information from State, District shall provide each Water User an adjusted accounting of the water charge(s), based upon District's adjusted payment obligations to State and the actual quantities of water delivered to Water User. District shall include with said adjusted accounting either:

**(I)** A statement of credit showing the amount that shall be deducted from the next installment of Water User's payment obligations to District or a District check to Water User for overpayment; or

**(II)** An invoice statement for Water User's additional payment obligations that shall be due and payable within thirty (30) days from date of invoice.

**(f)** The District Water Service Charge adjustment shall be based on actual expenditures at Year-end and credited or charged to the Water Users in accordance with Paragraph 6(e) (I) & (II).

**(g)** Under the provisions of the State Contract and the administrative procedures of the State, it is expected that there will continue to be occasions when District will not receive final power cost information on various categories of Project Water, including Carryover Water and/or Supplemental Water delivered to District until one year or more after the date of delivery of such water. Such final cost information may indicate that upward and/or downward power cost adjustments will be applicable to such delivered water. All such upward and/or downward power cost adjustments shall be allocated in proportion to the Water Users respective Project Water, and/or Supplemental Water delivered in the subject Year of adjustment.

**(h)** The State shall determine annually the Off-Aqueduct Charge based on costs for energy required for requested water deliveries from all Contractors under the State Water Supply Contracts. Subsequent adjustments shall be made based upon actual Water User's deliveries and upon the net Off-Aqueduct charge. In the event the quantity of Project Water delivered by District in Year is zero, then the Off-Aqueduct Charge shall be allocated uniformly to the Water Users in proportion to Water User's respective Table A Water based on actual deliveries.

**(i)** The charges provided for herein are authorized by Sections 43006 and 47180 of the California Water Code and are intended to be provisionally in lieu of assessments

authorized under said Code. Nothing contained herein shall limit the power of District to levy assessments from time to time in accordance with benefits, as provided in said California Water Code, to collect such amounts as may be found necessary by District to meet its financial obligations to the State.

**(j)** No water shall be delivered to Water User if such Water User is delinquent in the payment of any charges under this Water Service Contract, delinquent in any assessment levied by District, in breach of this Water Service Contract, or in violation of any of the Rules and Regulations. In addition to the other remedies provided herein and by law, the Board may reallocate a Water User's water in the manner provided in Paragraph 6(o) herein in the event he fails to cure a delinquency or violation within ten days of notice of such. Any violation of the Rules and Regulations must be cured within five days of notice of such violation. Should Water User fail to timely cure the violation, he shall be considered in default of this Water Service Contract. In the event Water User is or has been delinquent or in default under this or a prior Water Service Contract, the Board may, in its discretion, require Water User to post a deposit in an amount to be determined by Board before Water Service may be reinstated under this or any subsequent Water Service Contract.

**(k)** In the event District is unable to meet its total financial obligation to the State due to failure by one or more of the Water Users to remit payment as provided in this Water Service Contract that would result in delinquency charges by the State, District shall make payment to the State of those funds which are available from Water Users prior to the State's delinquency date. Remaining payments received from the delinquent Water User(s), including State delinquency charges, will be forwarded to the State as they are received to be credited against District's delinquent account. The delinquent Water User shall be responsible for any and all State delinquency charges, and other charges accrued on the outstanding delinquency. District shall bill each delinquent Water User his pro rata share of such charges, considering both the amounts and periods of time of the delinquency. In addition, each such delinquent Water User shall be obligated to pay any District interest, penalties, or other charges, all as hereinafter provided.

**(l)** In the event any charge or any obligation of the Water User arising from this Water Service Contract remains unpaid for a period of thirty (30) days after invoice date, it shall thereupon become delinquent and a penalty of ten percent (10%) shall be added thereto and it shall thereafter bear interest at the rate of twelve percent (12%) per annum, shall be recorded as a lien on the Water User's land, and shall be collectible, all as provided in Sections 47181 to 47185, inclusive, and Section 43003 of said California Water Code and in any other manner authorized by law. Any Water User who shall become delinquent in any payment due hereunder shall be considered in default of this Water Service Contract.

**(m)** Monies received from Water User shall be first applied to the oldest outstanding invoices and any penalties or interest thereon. District imposed penalties and interest collected from Water User(s) shall be deposited in the District's State Water Fund Account for the benefit of all Water Users.

(n) Delinquent Water User shall reimburse District for all costs, including, but not limited to, administrative costs and attorneys fees associated with the collection of delinquent payments, penalties, and interest.

(o) Water User's failure or refusal to accept delivery of his Contract Amount of Water in any Year shall in no way relieve Water User of the payment obligations provided for herein. Should any Water User not accept delivery of his Contract Amount of Water, then the District, at the request of Water User, shall make reasonable efforts to dispose of any water made available to, but not required by, Water User. In disposing of any such water, District shall first make the water available to other Water Users within the District at the District Rate. The District shall then make reasonable efforts to dispose of the water under the provisions of the State Contract on the open market. Each Water User shall be deemed a third party beneficiary of each of the other Water User contracts and shall have a right of first refusal to purchase the water being disposed. Revenue derived from the disposition of the water shall be first credited against the Water User's payment obligations hereunder. Any surplus revenues from the disposition of the water shall be deposited into District's State Water Project Fund Account for the benefit of all Water Users. This provision shall not apply to Transfers permitted under Section 8 below.

(p) Purchasers outside of District and Water User(s) who purchase water on the open market, pursuant to Paragraph 6(o) above, for use outside District shall reimburse District for all of its out of pocket costs associated with the processing of the transfer of said water out of the District.

## **7. ADMINISTRATION OF THE TRUST FUND AND TRUST FUND ACCOUNTS**

(a) Trust Fund. The provisions of this Contract shall be subject to the terms of the Trust Fund.

(b) Water User Accounts. The District shall create and maintain individual Water User accounts to internally administer the District's account in the Trust Fund. The Water User's Trust Fund Account shall be credited with all amounts paid into the Trust Fund by the Water User and earned interest. The amounts withdrawn from the Trust Fund, per the request of Water User, shall be debited against the Water User's Trust Fund Account to reduce the Water User's State billing(s), as hereinafter provided.

(c) Payments into the Trust Fund. The District shall periodically bill each Water User, based on the Water User's percentage of Annual Entitlement, for the District's payments to the State and required contributions to the Trust Fund. Payment of said billings shall be subject to Paragraph 6(l) hereof.

**(d) Payments out of the Trust Fund.**

(1) Years of Less Than 100% Table A Allocation. In any year in which the State's allocation of Annual Entitlement to the District by April 15<sup>th</sup> of that year is less than one hundred percent (100%) of the District's requested Annual Entitlement for that year, at the direction of the Water User, the District shall request the Trustee of the Trust Fund, to the extent there are funds in the Water User's Account, to distribute to the State (or the District) amounts specified in Article 51(h)(4)(i) of the State Contract. The District shall debit each Water User's Trust Fund Account by the amount of reduction the respective Water Users received on their State billings.

(2) Flooded Irrigable Lands. In any year in which there are irrigable lands within the District which are or have been flooded or not timely planted due to flooding prior to April 15<sup>th</sup> of that year, at the direction of any Water User whose lands are not planted, the District shall request the Trustee of the Trust Fund, to the extent there are funds in the Water User's Account, to distribute to the State (or the District) amounts specified in Article 51(h)(4)(ii) of the State Contract. The District shall debit the Water User's Trust Fund Account by the amount of reduction the Water User received on his State billings. In no event shall the District request on behalf of a Water User a reduction in his State billings in an amount in excess of the balance in that Water User's Trust Fund Account. Reductions in billings to the District as a result of Water User requests for distributions from the Trust Fund shall be allocated to those Water Users whose lands are not planted and who have requested distribution from the Trust Fund.

(3) Notwithstanding the foregoing, in any year in which an entitlement reduction has occurred under Article 51 of the State Contract, the Board may reduce the District's payment into the Trust Fund by the amount added to the District's Statement of Charges from State as a result of said entitlement reduction.

## **8. WATER TRANSFERS/EXCHANGES**

Water transfers and exchanges to, from or within the District shall be governed under the District's Rules and Regulations, which may be amended from time to time.

## **9. NOTICE**

Any Notice or Announcement which the provisions hereof contemplate shall be given to one of the parties hereto by the other in writing and shall be deemed to have been given if deposited in the United States mail on the part of District in a postage-prepaid envelope addressed to Water User at the address shown on District Records, and on the part of Water User in a postage-prepaid envelope, addressed to District at 1001 Chase Avenue, Corcoran, California 93212, or such other address as from time to time may be designated by written notice from one party to the other; provided,

however, that this Article shall not preclude the effective service of any such Notice or Announcement by other means.

#### **10. TERM OF CONTRACT**

This Water Service Contract shall be effective on January 1, 2013, and shall remain in effect for a period of five Years, terminating December 31, 2017.

#### **11. CONTRACT AMENDMENTS OR MODIFICATIONS**

This Water Service Contract may be renewed, amended, modified, or prematurely terminated only upon the mutual written consent of the parties.

#### **12. RIGHTS OF LANDOWNERS REGARDING ALLOCATION OF PROJECT WATER**

Upon termination of this Water Service Contract, any landowner shall have the right to contract with the District for his share of Project Water on the same terms and conditions as the other Water Users, except for those landowners who have severed their right to contract with the District for Project Water.

#### **13. CONTRACT ASSIGNMENT, SALE, OR TRANSFER**

(a) Except as provided herein, this Water Service Contract may not be assigned, sold, or transferred for use outside the District.

(b) Notwithstanding anything herein to the contrary, the conditions upon which long-term or permanent transfers of Table A water are allowed hereunder, shall be subject to the District's Rules and Regulations, as may be amended.

(c) The Water User may designate an agent for the management and use of the Contract Amount of Water, provided the Water User shall remain responsible under this Water Service Contract.

#### **14. RELATIONSHIP TO STATE CONTRACT**

This Water Service Contract is made subject to any and all requirements imposed upon District or Water User by the terms of the State Contract, and any

amendments thereto, and nothing in this Water Service Contract shall be deemed to require District or Water User to perform any obligation in conflict with the State Contract. The State Contract is hereby incorporated herein by this reference in all respects as though set forth in full at this point, and any amendments thereto.

## **15. GENERAL**

**(a)** Any waiver or claim of waiver at any time by either party to this Water Service Contract of its rights with respect to default, or any other matter arising in connection with this Water Service Contract, shall not be deemed to be a waiver with respect to any subsequent default or matter.

**(b)** Nothing contained in this Water Service Contract shall be construed as in any manner abridging, limiting, or depriving the District or Water Users of any means of enforcing any remedy, either at law or in equity, for the breach of any of the provisions hereof which it would otherwise have.

**(c)** Where the terms of this Water Service Contract provide for action to be based upon the opinion or determination of either party to this Water Service Contract, whether or not stated to be conclusive, said terms shall not be construed as permitting such action to be predicated upon arbitrary, capricious, or unreasonable opinions or determinations.

**(d)** Captions accompanying sections of this Water Service Contract are for convenience of reference and do not form a part of this Water Service Contract.

**(e)** Water Service Contracts executed by District for agricultural water service shall be uniform with respect to basic terms and conditions.

**(f)** It is agreed by the parties that time is of the essence in Water Service Contract.

**(g)** Nothing herein contained shall be deemed to require the performance of any act which shall constitute the modification or abandonment of Project Facilities, nor be deemed to prevent the exercise of any powers contained in the California Water Storage District Law regarding the modification or abandonment of the Project Facilities.

**(h)** In the event it becomes necessary that either party hereto must file a suit to enforce any of the terms or conditions herein, or to secure damages for breach of any of the provisions hereof, the prevailing party in such litigation shall be entitled to recover reasonable attorney's fees from the other.

## **TULARE LAKE BASIN WATER STORAGE DISTRICT**

By: \_\_\_\_\_

President

Date: \_\_\_\_\_

By: \_\_\_\_\_

Secretary

Date: \_\_\_\_\_

## **WATER USER:**

By: \_\_\_\_\_

Date: \_\_\_\_\_